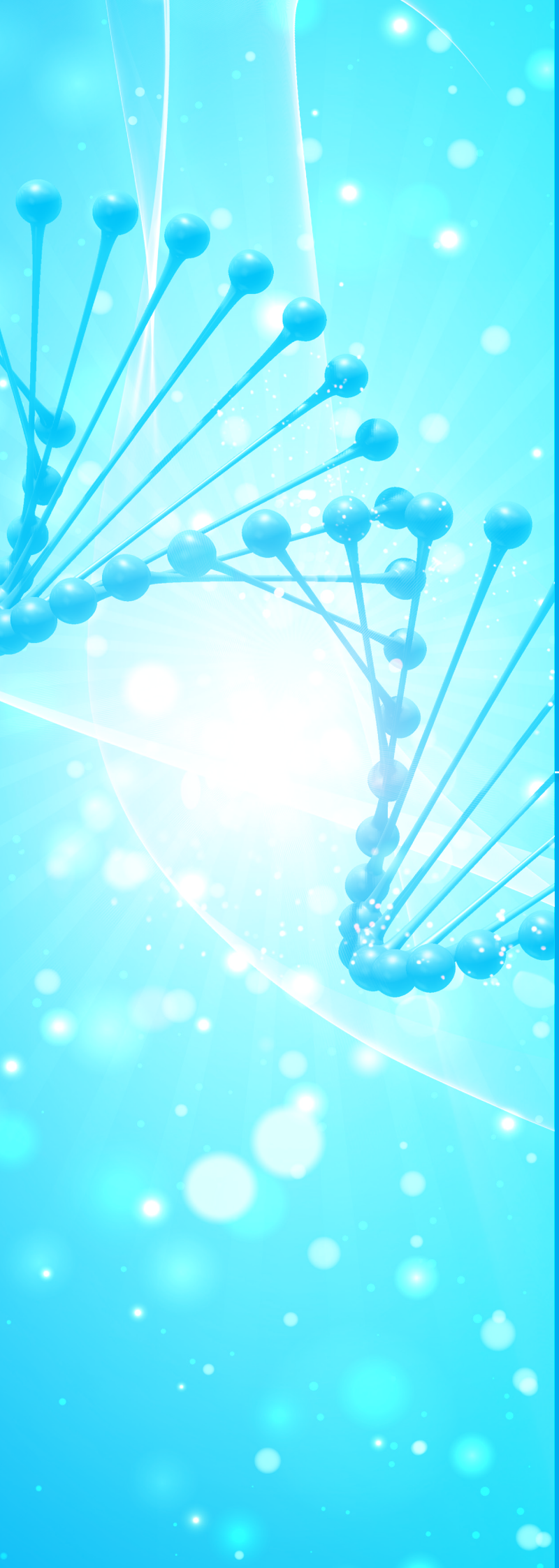

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RAZLOZI DOLASKA MUŠKARACA KOJI IMAJU SEKSUALNE ODNOSE SA MUŠKARCIMA U JEDNU NEVLADINU ORGANIZACIJU U BEOGRADU

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SAŽETAK

Uvod/Cilj: Stigmatizacija koja prati muškarce koji imaju seksualne odnose sa muškarcima (MSM) i HIV/AIDS predstavlja značajnu barijeru kako za prevenciju, tako i za terapiju i prognozu bolesti. Nevladine organizacije koje rade sa ovim vulnerabilnim grupama, pored različitih vrsta podrške, pružaju i besplatno testiranje na sifilis i HIV infekciju. Cilj ovog istraživanja je utvrđivanje razloga za dolazak MSM osoba u nevladin *Checkpoint centar* za prevenciju polno prenosivih infekcija (PPI), savetovanje, testiranje i podršku, kao i profilisanje motiva za dolazak u ovaj centar.
Metode: U istraživanje je uključeno 413 MSM osoba. Svi korisnici centra su popunili anonimni upitnik koji je obuhvatio pitanja o osnovnim demografskim karakteristikama, razlozima i motivima dolaska u centar, kao i ocenu zadovoljstva dobijenim uslugama. Korisnicima koji su došli na laboratorijsku dijagnostiku sifilisa i HIV-a rađeni su imunohromatografski brzi skrining testovi treće generacije.
Rezultati: Prosečan uzrast korisnika bio je 30,61 ± 8,44 godina. Većina korisnika centra bila je iz Beograda (85,7%) i u statusu zaposlenog lica (86%). Preko 95% korisnika došlo je u *Checkpoint centar* da bi se testiralo na HIV i sifilis, 12,1% radi dobijanja pre-ekspozicione profilakse (PrEP) za HIV, a 6,5% zbog pregleda dermatovenerologa i 2,4% zbog psihološkog savetovanja. Od ukupno testirane 393 osobe na HIV i sifilis, pozitivan test na HIV zabeležen je kod 10 (2,5%) korisnika, a na sifilis kod 25 (6,4%). Najčešći motivi za dolazak u centar bili su pozitivna atmosfera i diskrecija koju centar pruža korisnicima (79,9%), a zatim dostupnost testova na HIV i sifilis bez lekarskog uputa (57,9%), odsustvo stigme i osuđivanja u centru (54%) i fleksibilno radno vreme (47,5%). Korisnici su svoje zadovoljstvo dobijenim uslugama u centru ocenili prosečnom ocenom 4,98 ± 0,12.
Zaključak: Zbog stigmatizacije koja prati MSM populaciju i osobe koje žive sa HIV infekcijom, nevladine organizacije koje rade sa ovim vulberabilnim grupama u saradnji sa javnim zdravstvenim sektorom imaju značajnu ulogu u kontroli širenja i prevenciji PPI-ja i HIV-a. Dostupnost centara, prijateljska atmosfera, diskrecija i odsustvo stigme i diskriminacije su razlozi zbog kojih ih pripadnici MSM populacije rado posećuju.

Ključne reči: muškarci koji imaju seksualne odnose sa muškarcima, stigmatizacija, razlozi dolaska, sifilis, HIV, PrEP

Uvod

Od početka HIV (engl. *Human immunodeficiency virus* – virus humane imunodeficijencije) pandemije, u svetu se kontinuirano beleži porast broja HIV novoinficiranih osoba među populacijom muškaraca koji imaju seksualne odnose sa muškarcima (MSM) i oni predstavljaju vulnerabilnu grupu kako za HIV/AIDS (engl. A*cquired immunodeficiency syndrome* – sindrom stečene imunodeficijencije), tako i za ostale polno prenosive infekcije – PPI (1). Podaci o kretanju PPI-ja i HIV-a u Republici Srbiji, tokom 2021. godine, pokazuju da su 78,5% novoinficiranih virusom HIV-a činili MSM, a u ovoj populaciji je bilo i najviše registrovanih novoobolelih osoba od ranog sifilisa (2).

Stigmatizacija koja prati HIV/AIDS predstavlja značajnu barijeru, kako za prevenciju [testiranje i primena preekspozicione profilakse – PrEP (engl. *Pre-exposure prophylaxis*) za HIV], tako i za terapiju (pravovremeno javljanje zdravstvenim službama i otpočinjanje lečenja, komplijansa) i prognozu

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REASONS WHY MEN WHO HAVE SEX WITH MEN VISIT ONE NON-GOVERNMENTAL ORGANIZATION IN BELGRADE

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SUMMARY

Introduction/Aim: The stigma surrounding men who have sex with men (MSM) and HIV/AIDS represents a significant barrier for the prevention, as well as for the treatment and prognosis of the disease. Non-governmental organizations working with these vulnerable groups, besides providing various forms of support, also offer free testing for syphilis and HIV infection. The aim of this research is to determine the reasons for MSM individuals to visit a non-governmental Checkpoint center for the prevention of sexually transmitted infections (STIs), counseling, testing, and support, as well as profiling the motives for coming to the center.

Methods: The study included 413 MSM individuals. All center users completed an anonymous questionnaire covering questions about basic demographic characteristics, reasons and motives for comming to the center, as well as an assessment of satisfaction with the services received. Users who came for laboratory diagnosis of syphilis and HIV underwent third-generation immunochromatographic rapid screening tests.

Results: The average age of users was 30.6±8.44 years. Most center users were from Belgrade (85.7%) and employed (86%). Over 95% of users came to the Checkpoint center to be tested for HIV and syphilis, 12.1% of them came for pre-exposure prophylaxis (PrEP) for HIV, while a smaller percentage came for dermatological examination (6.5%) and psychological counseling (2.4%). Out of a total of 393 persons tested for HIV and syphilis, a positive HIV test was recorded in 10 (2.5%) users and syphilis in 25 (6.4%). The most common motives for coming to the center were the positive atmosphere and discretion provided to users (79.9%), availability of HIV and syphilis tests without a doctor's referral (57.9%), absence of stigma and judgment in the center (54%), and flexible working hours (47.5%). Users rated their satisfaction with the services received at the center with an average mark of 4.97±0.12.

Conclusion: Due to the stigmatization accompanying the MSM population and individuals living with HIV infection, non-governmental organizations working with these vulnerable groups in collaboration with the public health sector play a significant role in controlling the spread and prevention of STIs and HIV. The availability of centers, friendly atmosphere, discretion, and absence of stigma and discrimination are reasons why members of the MSM population willingly visit them.

Keywords: men who have sex with men, stigmatization, reasons for visiting, syphilis, HIV, PrEP

Introduction

Since the beginning of the human immunodeficiency virus (HIV) pandemic, in the world an increase has been continuously recorded in the population of men who have sex with men (MSM) and they represent a vulnerable group for HIV/AIDS (Acquired Immunodeficiency Syndrome), as well as for other sexually transmitted infections (STIs) (1). Data on the trends in STIs and HIV in the Republic of Serbia during 2021 show that 78.5% of newly infected with HIV were MSM, while the highest number of newly infected persons with early syphilis was also in this population (2).

The stigmatization accompanying HIV/AIDS represents a significant barrier for the prevention [testing and application of pre-exposure prophylaxis (PrEP) for HIV], as well as for the therapy (timely reporting to health services and starting treatment, compliance) and disease

bolesti (3,4). Pored stigme vezano za HIV infekciju, stigmatizacija prati MSM kako na društvenom, institucionalnom (npr. zdravstvene ustanove), tako i na ličnom nivou, u vidu autostigme (5,6). Neretko pripadnici MSM populacije u našoj sredini se odlučuju za savetovanje i testiranje na HIV i druge PPI u nevladinim organizacijama koje sprovode ovu vrstu skrininga u saradnji sa javnim zdravstvenim sektorom (7).

Cilj ovog istraživanja je utvrđivanje razloga za dolazak MSM osoba u *Checkpoint centar* za prevenciju PPI-ja, savetovanje, testiranje i podršku, kao i profilisanje motiva za dolazak u ovaj centar.

Metode

Istraživanje je sprovedeno u okviru projekta „*Strenghtening and integrating community based HIV prevention and support for MSM, LGBTQI and PLHIV communities*“ - „Osnaživanje i integracija prevencije HIV-a i podrške MSM, LGBTQI (engl. *Lesbian, gay, bisexual, transgender, queer and intersex* – lezbijke, gej, transrodne, kvir i interseks) zajednici i ljudima koji žive sa HIV-om u okviru zajednice“, koji je podržan od strane *Gilead Sciences*. U njega su uključene sve MSM osobe koje su u periodu od 1. decembra 2022. godine do 31. maja 2023. godine došle u *Checkpoint centar* za prevenciju PPI, savetovanje, testiranje i podršku u Beogradu. Svi korisnici centra su popunili anonimni upitnik koji je obuhvatio pitanja o osnovnim demografskim karakteristikama (uzrast, mesto boravka, zaposlenje), razlozima i motivima dolaska u centar, kao i ocenu zadovoljstva o dobijenim uslugama (od 1 do 5). Korisnicima koji su došli na laboratorijsku dijagnostiku sifilisa i HIV-a rađeni su imunohromatografski brzi skrining testovi treće generacije HEXAGON SYPHILIS i TURKLAB anti-HIV ½ test. Ovi testovi su rađeni i svim korisnicima koji su došli radi propisivanja PrEP-a. Svim testiranim na HIV pruženo je dobrovoljno i poverljivo savetovanje na HIV pre testiranja, kao i nakon izdavanja rezultata testa od strane savetnika za dobrovoljno i poverljivo savetovanje i testiranje (DPST). Rezultati brzih testova na HIV su u narednih nedelju dana potvrđeni pozitivnim *Western-Blot* testom na Infektivnoj klinici Kliničkog centra Srbije, a na sifilis pozitivnim serološkim testovima (VDRL – *Venereal Disease Research Laboratory*; laboratorijski test za istraživanje veneričnih bolesti i TPHA – *Treponema Pallidum Haemagglutination Assay*; Treponema Pallidum hemaglutacioni test) u Gradskom zavodu za kožne i venerične bolesti u Beogradu. U statis-

Tabela 1. Izabrane karakteristike korisnika *Checkpoint* centra i razlozi dolaska

Karakteristike	Broj (%)
Uzrast (godine)	
prosečan uzrast ± SD	30,61 ± 8,44
≤ 19	13 (3,1)
20-29	196 (47,5)
30-39	141 (34,1)
40-49	51 (12,3)
50+	12 (3,0)
Mesto stanovanja	
Beograd	354 (85,7)
Van Beograda	59 (14,3)
Zaposlenost	
Zaposlen	355 (86,0)
Nezaposlen	58 (14,0)
Razlog dolaska*	
Testiranje na HIV/sifilis**	393 (95,2)
PrEP***	50 (12,1)
Pregled dermatologa	27 (6,5)
Razgovor sa psihologom	10 (2,4)
Upućen iz centra u zdravstvenu ustanovu	
Da	112 (27,1)
Ne	301 (72,9)

*korisnici su mogli izabrati više razloga za dolazak u *Checkpoint centar*; **HIV - virus humane imunodeficijencije; ***PrEP - preekspoziciona profilaksa za HIV

prognosis (3,4). In addition to the stigma related to HIV infection, stigmatization accompanies MSM both at the social, institutional (e.g. health institutions), as well as at the personal level, in the form of self-stigma (5,6). The members of MSM population in our community often opt for counseling and testing for HIV and other STIs in non-governmental organizations that carry out this type of screening in cooperation with the public health sector (7).

The aim of this research is to determine the reasons why MSM come to the Checkpoint center for the prevention of STIs, counseling, testing and support, as well as profiling the motives for coming to this center.

Methods

The research was conducted within the project "Strengthening and integrating community based HIV prevention and support for MSM, LGBTQI and PLHIV communities", which was supported by Gilead Sciences. It included all MSM who came to the Checkpoint center for the prevention of STIs, counseling, testing and support in Belgrade from December 1st, 2022 to May 31st, 2023. All users of the center filled out an anonymous questionnaire that included questions about basic demographic characteristics (age, place of residence, employment), reasons and motives for coming to the center, as well as the assessment of satisfaction with received services (from 1 to 5). Users who came for laboratory diagnosis of syphilis and HIV underwent third generation immunochromatographic rapid screening tests HEXAGON SYPHILIS and TURKLAB anti-HIV ½ test. These tests were also conducted in all users who came for PrEP. All persons who were tested for HIV were offered voluntary and confidential HIV counseling before testing, as well as after they were given test results by the counselor for voluntary and confidential counseling and testing (VCT). The results of rapid tests for HIV were confirmed in the following week with a positive Western-Blot test at the Clinic for Infectious Diseases of the Clinical Center of Serbia, while tests for syphilis were confirmed by positive serological tests (VDRL – Venereal Disease Research Laboratory, laboratory test for venereal diseases and TPHA – Treponema Pallidum Haemagglutination Assay) at the City Institute for Skin and Venereal Diseases in Belgrade. Proportions and percentages were used in the statistical analysis of data.

Table 1. Selected characteristics of Checkpoint center users and reasons for visiting

Characteristics	Number (%)
Age (years)	
Average age ± SD	30.61 ± 8.44
≤ 19	13 (3.1)
20-29	196 (47.5)
30-39	141 (34.1)
40-49	51 (12.3)
50+	12 (3.0)
Place of residence	
In Belgrade	354 (85.7)
Outside Belgrade	59 (14.3)
Employment	
Employed	355 (86.0)
Unemployed	58 (14.0)
Reason for visiting*	
HIV/Syphilis testing**	393 (95.2)
PrEP***	50 (12.1)
Dermatologist examination	27 (6.5)
Consultation with a psychologist	10 (2.4)
Referred from the center to a healthcare institution	
Yes	112 (27.1)
No	301 (72.9)

* Users could choose multiple reasons for visiting Checkpoint center; **HIV - Human Immunodeficiency Virus; ***PrEP - Pre-exposure prophylaxis for HIV

Tabela 2. Motivi za dolazak muškaraca koji imaju seksualne odnose sa muškarcima u *Checkpoint centar**

Motivi	Broj (%)
Odgovara mi fleksibilno radno vreme centra	196 (47,5)
Ne treba mi uput za testove koje bih hteo da uradim	239 (57,9)
Prija mi atmosfera i diskrecija koju centar pruža	330 (79,9)
Imao sam neprijatna iskustva u državnim/privatnim zdravstvenim ustanovama	30 (7,3)
Ne osećam nikakvo osuđivanje i stigmatizaciju u centru	223 (54,0)
Nemam važeću zdravstvenu knjižicu	33 (8,0)
Čuo sam pozitivna iskustva osoba koje su već posećivale centar	116 (28,1)
Ne znam gde mogu da dobijem uslugu savetovanja oko PrEP-a i PPI*** **	54 (13,1)
Dobio sam preporuku od prijatelja	91 (22,0)

*korisnici su mogli izabrati više motiva zbog kojih su odlučili da dođu u *Checkpoint centar*; **PrEP - preekspoziciona profilaksa za HIV; *** PPI – polno prenosive infekcije

tičkoj analizi podataka korišćene su mere deskriptivne statistike: aritmetička sredina, standardna devijacija, proporcije i procenti.

Rezultati

U istraživanje je uključeno 413 MSM osoba. Prosečan uzrast korisnika usluga *Checkpont centra* bio je 30,61 ± 8,44 godina (Tabela 1), a najveći broj MSM osoba bio je u starosnoj dobi od 20 do 29 godina (47,5%), a potom u uzrasnoj grupi 30-39 godina (34,1%). Većina korisnika centra bila je iz Beograda (85,7%) i u statusu zaposlenog lica (86%). Preko 95% korisnika došlo je u *Checkpoint centar* da bi se testiralo na HIV i sifilis, 12,1% njih je došlo radi dobijanja PrEP-a, dok je manji procenat njih došao na pregled dermatovenerologa (6,5%) i psihološko savetovanje (2,4%). Najčešći razlozi za posetu dermatologu su bili anogenitalni kondilomi i gljivične infekcije kruralne regije (lat. *Tinea cruris*). Više od ¼ korisnika je iz centra upućeno u odgovarajuće zdravstvene ustanove. Od ukupno testirane 393 osobe na HIV i sifilis, pozitivan test na HIV zabeležen je kod 10 (2,5%) korisnika, a na sifilis kod 25 (6,4%).

Motivi zbog kojih su korisnici usluga odlučili da dođu u *Checkpoint centar* prikazani su u Tabeli 2. Najčešći motivi bili su pozitivna atmosfera i diskrecija koju centar pruža korisnicima (79,9%), zatim dostupnost testova na HIV i sifilis bez lekarskog uputa (57,9%), odsustvo stigme i osuđivanja u centru (54%) i fleksibilno radno vreme (47,5%). Manje od 10% korisnika je došlo u centar, jer nema važeću zdravstvenu knjižicu ili zato što su imali neprijatna iskustva u državnom ili privatnom zdravstvenom sektoru.

Korisnici su svoje zadovoljstvo dobijenim uslugama u centru ocenili prosečnom ocenom preko 4,98 ± 0,12 (Tabela 3).

Diskusija

Prema rezultatima našeg istraživanja, korisnici *Checkpoint centra* su kao najčešće motive dolaska u centar naveli pozitivnu atmosferu, diskreciju, dostupnost testova za HIV i sifilis, kao i odsustvo stigme i diskriminacije, a najčešći razlozi za dolazak su upravo i bili testiranje na HIV i sifilis i propisivanje PrEP-a od strane zdravstvenog radnika.

Prema istraživanju HIV stigma indeksa među zdravstvenim radnicima u Republici Srbiji preko trećine ispitanika je pokazalo diskriminatorno ili vrlo diskriminatorno ponašanje prema pacijentima koji su im otkrili svoj HIV-pozitivan status, dok je sa druge strane skoro ¼ HIV-pozitivnih osoba izjavila da su zdravstveni radnici bez njihove saglas-

Tabela 3. Zadovoljstvo korisnika uslugama u *Checkpoint* centru

Zadovoljstvo korisnika	Prosečna ocena ± SD
Zadovoljstvo uslugama u centru	4,98 ± 0,12
Zadovoljstvo komunikacijom sa angažovanim osobama u centru	4,99 ± 0,11
Zadovoljstvo materijalom dobijenim u centru (flajeri, kondomi, lubrikanti)	4,97 ± 0,16

SD-standardna devijacija

Table 2. Motives for the arrival of men who have sex with men into Checkpoint center*

Motives	Number (%)
I appreciate the flexible working hours of the center	196 (47.5)
I don't need a referral for the test I want to take	239 (57.9)
I enjoy the atmosphere and discretion provided by the center	330 (79.9)
I have had unpleasant experiences in public/private healthcare institutions	30 (7.3)
I don't feel any judgment or stigma at the center	223 (54.0)
I don't have a valid health insurance card	33 (8.0)
I have heard positive experiences from people who have already visited the center	116 (28.1)
I don't know where I can get counseling services about PrEP and STIs*** **	54 (13.1)
I received a recommendation from a friend	91 (22.0)

*Users could choose multiple motivations for deciding to visit the Checkpoint center; **PrEP-Pre-exsposure Prophylaxis for HIV; *** STIs – sexually transmitted infections

Results

413 MSM persons were included in the study. The average age of users of the Checkpoint center services was 30.6 ± 8.44 years (Table 1), while the largest number of MSM persons was in the age group 20 to 29 years (47.5%), followed by the age group 30-39 years (34.1%). Most of the users of the center were from Belgrade (85.7%) and they were employed (86%). Over 95% of users came to the Checkpoint center to be tested for HIV and syphilis, 12.1% came to receive PrEP, while a smaller percentage came for a dermatovenerologist examination (6.5%) and psychological counseling (2.4%). The most common reasons for visiting a dermatologist were anogenital warts and fungal infections of the crural region (lat. Tinea cruris). More than ¼ of users were referred from the center to appropriate health institutions. Out of the total of 393 persons tested for HIV and syphilis, a positive test for HIV was registered in 10 users (2.5%), and for syphilis in 25 users (6.4%).

The motives due to which users of services decided to come to the Checkpoint center are shown in Table 2. The most frequent motives were positive atmosphere and discretion that the center provides to its users (79.9%), followed by the availability of HIV and syphilis tests without a doctor's referral ((57.9%), the absence of stigma and condemnation at the center (54%), and flexible working hours (47.5%). Less than 10% of users came to the center because they did not have a valid health insurance card or because they had unpleasant experiences in the state or private health sector.

Users rated their satisfaction with the services received at the center with an average mark 4.98 ± 0.12 (Table 3).

Discussion

According to the results of our study, the users of the Checkpoint center stated that the positive atmosphere, discretion, the availability of tests for HIV and syphilis, as well as the absence of stigma and discrimination were the most frequent motives for coming to the center, whereas the most frequent reasons were testing for HIV and syphilis and PrEP prescribed by a healthcare worker.

According to the survey of the HIV stigma index among healthcare workers in the Republic of Serbia, over a third of respondents showed discriminatory or very discriminatory behavior towards patients who disclosed their HIV-positive status, while on the other hand, almost ¼ of HIV-positive persons stated that healthcare workers

Table 3. User satisfaction with services at the Checkpoint center

User satisfaction	Prosečna ocena ± SD
Satisfaction with services at the center	4.98 ± 0.12
Satisfaction with communication with staff at the center	4.99 ± 0.11
Satisfaction with materials received at the center (flyers, condoms, lubricants)	4.97 ± 0.16

SD-standard deviation

nosti otkrili njihov HIV status drugim licima, a preko polovine pacijenata je smatralo da se njihova medicinska dokumentacija ne čuva poverljivo (8). Istraživanje kvaliteta života osoba koje žive sa HIV-om je pokazalo da je u toku poslednjih godinu dana 27,5% njih doživelo stigmu i diskriminaciju u zdravstvenoj ustanovi (8), što donekle objašnjava podatak iz našeg rada da je upravo odsustvo stigme i diskriminacije bio jedan od motiva za dolazak u *Checkpoint centar.*

Testiranje na HIV i sifilis su bili vodeći razlozi naših korisnika za dolazak u centar. Prevalencija sifilisa bila je 6,4%, a novootkrivene HIV infekcije 2,5%. Ranije istraživanje prevalencije sifilisa i HIV-a među testiranim MSM osobama u jednoj nevladinoj organizaciji u Beogradu, sprovedeno tokom 2020. godine, je otkrilo 3,9% novoobolelih od sifilisa i 1,1% novoinficiranih HIV infekcijom (7). Blag porast novootkrivenih slučajeva među našim ispitanicima ukazuje na značaj skrininga za ove infekcije i obuhvat većeg broja testiranih među MSM osobama, koje rado dolaze u nevladine organizacije koje prepoznaju kao „prijateljski“ naklonjene. Sifilis je oboljenje opisano kao „veliki imitator“ i nekada ga je teško klinički otkriti i dijagnostikovati, ali imajući u vidu epidemiološku situaciju u Republici Srbiji i porast trenda obolevanja od sifilisa, naročito među MSM osobama (9), ova vrsta skrininga među osetljivom populacijom je više nego neophodna radi otkrivanja nedijagnostifikovanih slučajeva infekcije.

PrEP predstavlja biomedicinsku formu prevencije HIV infekcije, primenom oralnih antiretrovirusnih lekova, kod osoba koje su u povećanom riziku od HIV-a, poput MSM osoba (10). Osobama koje veoma često praktikuju nezaštićene seksualne odnose savetuje se dnevna terapija u periodu do 90 dana sa jednom tabletom koja se sastoji iz kombinacije dva leka tenofovir disoproxil fumarata i emtricitabina (TDF/FTC –Truvada), dok osobe koje povremeno praktikuju visokorizična ponašanja mogu po potrebi uzimati PrEP po shemi 2-1-1, tj. 2 do 24 sata pre seksualnog odnosa dve tablete, potom jednu tabletu 24 sata nakon uzimanja prve doze i jednu tabletu 24 sata nakon druge doze. Kod pravilnog uzimanja leka redukuje se rizik za dobijanje HIV infekcije za oko 99% (11). Analiza većeg broja studija sprovedenih među MSM osobama koje su koristile PrEP je pokazala da se redukcija dobijanja HIV infekcije kretala 75-86% u zavisnosti od redovnosti uzimanja lekova (12). Ova vrsta prevencije HIV infekcije nije toliko prisutna u našoj sredini, naime u našem radu samo 12,1% korisnika je došlo u Centar radi propisivanja PrEP-a od strane epidemiologa, a rezultati studije o upotrebi rekreativnih droga i hemseksa među MSM populacijom u Beogradu su pokazali da je samo 7,3% ispitanika koristilo PrEP i da se ova vrsta prevencije HIV infekcije statistički značajno češće registrovala među osobama koje su koristile i hemseks (13). Upotreba PrEP-a korisnicima daje sigurnost da se neće inficirati HIV-om te stoga praktikuju i rizičnije seksualne prakse, poput seksa pod uticajem seksualizovanih droga koji dodatno povećava rizik za dobijanje i ostalih PPI. S obzirom na to da PrEP ne štiti od ostalih PPI, mnogi zdravstveni radnici imaju negativan stav prema njegovoj upotrebi (14). Korisnici PrEP-a su stigmatizovani i od strane ostatka MSM populacije, koja ih opisuje kao visoko promiskuitetne osobe, niskog morala, koje ne koriste kondome, bave se seksualnim radom i konzumiranjem seksualizovanih droga (4).

Najčešći razlog za dolazak korisnika centra na pregled kod dermatologa bile su anogenitalne bradavice. MSM populacija u našoj sredini prepoznala je rizike koje nosi infekcija određenim tipovima humanih papiloma virusa u nastanku karcinoma anusa (15), te bi se time mogla i objasniti njihova potreba za pregledom analne regije.

Zaključak

Zbog stigmatizacije koja prati MSM populaciju i osobe koje žive sa HIV infekcijom, nevladine organizacije koje rade sa ovim vulberabilnim grupama, u saradnji sa javnim zdravstvenim sektorom, imaju značajnu ulogu u kontroli širenja i prevenciji PPI i HIV-a. Dostupnost centara, prijateljska atmosfera, diskrecija i odsustvo stigme i diskriminacije su razlozi zbog kojih ih pripadnici MSM populacije rado posećuju.

Zahvalnica

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Konflikt interesa

Autor je izjavio da nema konflikta interesa.

disclosed their HIV status to other people without their consent, and more than half of the patients believed that their medical records were not kept confidential (8). The research on the quality of life of persons living with HIV showed that in the last year, 27.5% of them experienced stigma and discrimination in a healthcare institution (8), which explains the fact from our study that precisely the absence of stigma and discrimination was one of the motives for coming to the Checkpoint center.

Testing for HIV and syphilis were the leading reasons why our users came to the center. The prevalence of syphilis was 6.4%, and of newly diagnosed HIV infection 2.5%. An earlier study of the prevalence of syphilis and HIV among MSM in a non-governmental organization in Belgrade, which was conducted in 2020, revealed 3.9% of persons newly infected with syphilis and 1.1% of newly infected with HIV (7). A slight increase in newly discovered cases among our respondents indicated the importance of screening for these infections and the inclusion of a larger number of people tested among MSM, who willingly come to non-governmental organizations, which they recognize as "friendly". Syphilis is a disease which is described as a "great imitator" and sometimes it is hard to detect and diagnose it clinically, but considering the epidemiological situation in the Republic of Serbia and the increasing trend of syphilis, especially among MSM (9), this type of screening in the vulnerable population is more than necessary in order to detect the undiagnosed cases of infection.

PrEP represents a biomedical form of prevention of HIV, using oral antiretroviral drugs in persons who are at increased risk of HIV, such as MSM (10). People who practice unprotected sex very often are advised to take daily therapy in the period of up to 90 days with one tablet which consists of a combination of two drugs tenofovir disoproxil fumarate and emtricitabine (TDF/FTC – Truvada), while persons who occasionally practice high-risk behavior can take PrEP, if necessary, according to the 2-1-1 scheme, that is, 2 tablets 2 to 24 hours before sexual intercourse, then one tablet 24 hours after taking the first dose and one tablet 24 hours after the second dose. When medicines are taken correctly, the risk of getting the HIV infection is reduced by about 99% (11). The analysis of a larger number of studies conducted among MSM, who used PrEP, showed that the reduction in getting the HIV infection ranged between 75 and 86%, depending on the regularity of taking the medicines (12). This type of HIV prevention is not so present in our environment, namely in our study, only 12% of users came to the center to get PrEP prescribed by epidemiologist, while the results of the study on the use of recreational drugs and chemsex in the MSM population in Belgrade showed that only 7.3% of respondents used PrEP and that this type of prevention of HIV infection was statistically significantly more often registered among persons who also used chemsex (13). The use of PrEP gives users certainty that they will not get infected with HIV, and therefore, they practice more risky sexual relations such as sex under the influence of sexualized drugs, which further increases the risk of getting other STIs. Given that PrEP does not protect against other STIs, many healthcare professionals have a negative attitude towards its use (14). The users of PreP are also stigmatized by the rest of MSM population, who describe them as highly promiscuous persons with low moral who do not use condoms, engage in sex work and use sexualized drugs (4).

Anogenital warts were the most common reason why the users of the Center came to be examined by a dermatologist. The population of MSM in our environment has recognized the risks of infection with certain types of human papillomavirus in the development of anal cancer (15), and this could explain their need for the examination of the anal region.

Conclusion

Due to the stigmatization accompanying the MSM population and people living with HIV, non-governmental organizations working with these vulnerable groups in cooperation with the public health sector, have a significant role in controlling the spread and prevention of STIs and HIV. The availability of centers, friendly atmosphere, discretion and the absence of stigma and discrimination are the reasons why the members of MSM population willingly visit them.

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Competing interests

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UPOTREBA PSIHOAKTIVNIH SUPSTANCI U REGIONALNOM METADONSKOM CENTRU U SRBIJI

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SAŽETAK

Uvod/Cilj: Pacijenti na metadonskoj supstitucionoj terapiji (MST) često upotrebljavaju psihoaktivne supstance (nikotin, alkohol, kanabis, kokain, amfetamin i slične stimulanse, sedative, hipnotike, halucinogene i dr.), što može negativno uticati na terapijske ishode. Cilj ovog istraživanja je bio da se odredi prevalencija i modeli upotrebe psihoaktivnih supstanci kod pacijenata koji su na MST.
Metode: Istraživanje je sprovedeno u Metadonskom centru Univerzitetskog kliničkog centra Vojvodine u periodu avgust - oktobar 2022. godine. Podaci o upotrebi psihoaktivnih supstanci su prikupljeni pomoću opšteg i ASSIST (engl. *The Alcohol, Smoking and Substance Involvement Screening Test*) upitnika. Deskriptivna statistika je korišćena za analizu prikupljenih podataka.
Rezultati: Ukupno, 60 pacijenata na MST je uključeno u istraživanje. Među njima, bilo je najviše korisnika nikotina (98,3%), a zatim alkohola (10,0%) i nelegalnih psihoaktivnih supstanci (kanabisa, kokaina i meskalina) (5,1%) unutar tri meseca koja su prethodila istraživanju. Upotreba nelegalnih psihoaktivnih supstanci je uglavnom bila povremena. Tri pacijenta su imala ASSIST skor >27, što je ukazivalo na visok rizik od razvoja zavisnosti, alkoholne (2 pacijenta) ili kanabionoidne (1 pacijent).
Zaključak: Istraživanje je ukazalo na značajnu razliku u učestalosti upotrebe legalnih i nelegalnih psihoaktivnih susptanci. Zbog toga bi njihovu upotrebu trebalo pratiti na osnovu redovne i povremene analize urina.

Ključne reči: metadonska supstituciona terapija, psihoaktivne supstance, prevalencija, ASSIST skor, rizik od zavisnosti

Uvod

Metadon je najčešće korišćeni i najefikasniji lek u lečenju zavisnosti od opijata (1,2). Suzbija čežnju, ublažava simptome obustave i dovodi do tolerancije na euforične efekte opijata.

Psihoaktivne supstance mogu smanjiti adherencu prema metadonu i kompromitovati uspeh supstitucionog lečenja (3). Osim toga, one su neurotoksične i prouzrokuju kognitivne i bihejvioralne poremećaje (4,5), te različite oblike rizičnog ponašanja (rizični seksualni kontakti, upotreba nesterilnih špriceva i igala) koji povećavaju rizik od HIV infekcije (4). Pacijenti na metadonskoj supstitucionoj terapiji (MST) ih često (zlo)upotrebljavaju, jer je, npr., učešće pušača iznad 80%, a onih koji konzumiraju alkohol 25-35% (6-9). Takođe, jedno istraživanje je ukazalo da 65% pacijenata na supstitucionoj terapiji opioidnim agonistima (metadonom ili buprenorfinom/naloksonom) zloupotrebljava benzodiazepine (48,3%), amfetamin (41,7%), opioide (6,7%), kanabis (30%), nove psihoaktivne supstance (8,3%) i psihotropne lekove (25%), kao što su pregabalin, gabapentin, kvetiapin i bupropion (10).

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USE OF PSYCHOACTIVE SUBSTANCES IN THE REGIONAL METHADONE CENTER IN SERBIA

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SUMMARY

Introduction/Aim: Patients on methadone maintenance therapy often use psychoactive substances (nicotine, alcohol, cannabis, cocaine, amphetamine-type stimulants, sedatives, hypnotics, hallucinogens and others), which can negatively affect therapeutic outcomes. The aim of this study was to determine the prevalence and pattern of psychoactive substance use among patients on methadone maintenance therapy.
Methods: The study was conducted in the Methadone Center of the University Clinical Center of Vojvodina in the period August-October 2022. Substance use data were collected through general and ASSIST (The Alcohol, Smoking and Substance Involvement Screening Test) questionnaires, respectively. Descriptive statistics was used to analyze the collected data.
Results: In total, 60 patients on methadone maintenance therapy were included in the study. Among them, the prevalence of the use of nicotine, alcohol and illicit psychoactive substances was 98.3%, 10% and 5.1%, respectively, in the last 3 months preceding the investigation. The use of illicit psychoactive substances was mostly occasional. Three patients had ASSIST score >27 which was associated with a high risk of developing dependence to alcohol (two patients) or cannabis (1 patient).
Conclusion: The study indicated a significant difference in the prevalence of the use of licit and illicit psychoactive substances. Therefore, their use should be monitored through regular and occasional urinalysis.

Keywords: methadone maintenance therapy, psychoactive substance, prevalence, ASSIST score, risk of dependence

Introduction

Methadone is the most frequently used and most effective medication in the treatment of addiction to opioid drugs (1,2). It suppresses cravings, alleviates withdrawal symptoms and leads to tolerance to the euphoric effects of opioids.

Psychoactive substances can reduce the adherence to methadone and compromise the success of maintenance therapy (3). In addition, they are neurotoxic and cause cognitive and behavioral disorders (4,5), and therefore, various forms of risky behavior (risky sexual contacts, use of non-sterile syringes and needles) that increase the risk of HIV infection (4). Patients on methadone maintenance therapy (MMT) often (mis)use them because there are more than 80% of smokers and 25-30% of those who use alcohol (6-9). Also, one study has shown that 65% of patients on maintenance therapy involving opioid agonists (methadone or buprenorphine/naloxone) abuse benzodiazepine (48.3%), amphetamine (41.7%), opioids (6.7%), cannabis (30%), new psychoactive

Različite demografske i kliničke karakteristike se povezuju sa upotrebom psihoaktivnih supstanci kod osoba na MST. Demografske karakteristike su mlađe životno doba (11-13), muški pol (14), nezaposlenost i niži stepen obrazovanja (12), dok se među kliničkim karakteristikama navode lošije zdravstveno stanje (npr. depresija) (13). Upotreba psihoaktivnih supstanci kod osoba na MST može biti različita i nedovoljno je istražena i na nivou geografskih regiona (14,15).

Stoga, cilj ovog istraživanja je bio da se odredi prevalencija i modeli upotrebe psihoaktivnih supstanci kod pacijenata na MST u Univerzitetskom kliničkom centru Vojvodine, Novi Sad (Srbija), kao i da se predože odgovarajuće mere za optimizaciju ishoda terapije.

Metode

Istraživanje je sprovedeno između avgusta i oktobra 2022. godine u Metadonskom centru pri Klinici za psihijatriju Univerzitetskog kliničkog centra Vojvodine (KCV), Novi Sad (Srbija). Uloga Metadonskog centra je da implementira, sprovodi i kontroliše sprovođenje MST u regionu (16).

U istraživanje su uključeni pacijenati koji su bili na MST i koji su pristali da budu uključeni, što su i potvrdili potpisivanjem informisanog pristanka. Oni su bili stariji od 18 godina, imali su prethodnu istoriju neuspelih pokušaja lečenja od zavisnosti, jaku motivaciju za izlečenje kroz supstitucionu terapiju i jedan od međunarodnih dijagnostičkih kriterijuma opioidne zavisnosti (17).

Podaci o sociodemografskim karakteristikama i upotrebi psihoaktivnih supstanci su prikupljeni kroz intervju pacijenata u Metadonskom centru neposredno nakon izdavanja metadona. Intervjuisanje je trajalo između pet i 15 minuta. Za prikupljanje podataka su korištena dva instrumenta Opšti upitnik o sociodemografskim karakteristikama i ASSIST upitnik (engl. *The Alcohol, Smoking and Substance Involvement Screening Test*) o upotrebi psihoaktivnih supstanci (18).

Opšti upitnik je posebno razvijen za potrebe ovog istraživanja. Sastojao se od sedam pitanja koja su se odnosila na životnu dob (godine), pol (muški/ženski), bračni status (neoženjen/neudata, oženjen/udata, razveden/razvedena, udovac/udovica), decu (da/ne), obrazovanje (osnovna, srednja, viša i visoka škola), zaposlenost (da/ne) i stanovanje (selo/grad).

ASSIST upitnik je razvila Svetska zdravstvena organizacija, jer je upotrebu psihoaktivnih supstanci (nikotin, alkohol, kanabis, kokain, amfetamin i slični stimulansi, sedativi i hipnotici, halucinogeni, inhalanti, opioidi i druge) prepoznala kao rizik za javno zdravlje (18). On sadrži osam pitanja na osnovu kojih se mogu dobiti podaci o upotrebi psihoaktvnih supstanci bilo kada u životu ili unutar tri meseca koja su prethodila istraživanju (nikad/jedan do dva puta/mesečno/nedeljno/svakodnevno ili gotovo svakodnevno), kao i o problemima vezanim za njihovu upotrebu.

Navedena pitanja su zatvorenog tipa sa ponuđenim odgovorima koji se skoruju. Ukupni skor može biti u opsegu od 0 do 39 (osim za nikotin gde je skor u opsegu od 0 do 31), i njegovo tumačenje je sledeće: nizak rizik od razvoja zavisnosti ukoliko je skor u opsegu od 0 do 3 (osim za alkohol gde je skor u opsegu od 0 do 10), umeren ako je skor 4-26 (osim za alkohol gde je skor u opsegu od 11 do 26), a visok ako je skor ≥ 27 (18).

Prikupljeni podaci su numerički opisani pomoću mera deskriptivne statistike. Mere učestalosti (brojevi, proporcije) su korištene za numeričko opisivanje kvalitativnih podataka, a mere centralne tendencije (srednja vrednost) i mere varijabilnosti (opseg, standardna devijacija) su korištene za numeričko opisivanje kvantitativnih podataka. Deskriptivna statistika je sprovedena u statističkom program IBM Statistics SPSS za Windows verzija 20.0 (*IBM Corporation, Armonk, New York*).

Istraživanje je sledilo principe i etičke norme Helsinške deklaracije, i odobrila ga je Etička komisija Univerzitetskog kliničkog centra Vojvodine, Novi Sad (Srbija) (broj 00-08/332).

Rezultati

Ukupno, 60 pacijenata na SMT je uključeno u istraživanje. Njihove sociodemografske karakteristike su predstavljene u Tabeli 1. U proseku, imali su 42,18 godina (SD=6,33; minimalno 30, a maksimalno 60 godina). Bili su uglavnom muškog pola (75,0%), sa završenom srednjom školom (78,3%), nezaposleni (78,3%) i gotovo dve trećine je bilo neoženjeno/ neudato (65%).

Celoživotna prevalencija upotrebe psihoaktivnih supstanci je bila u opsegu od 66,7% (za inhalante) do 100% (za alkohol i opioide), dok je prevalencija njihove upotrebe unutar tri meseca

substances (8.3%) and psychotropic drugs (25%), such as pregabalin, gabapentin, quetiapine, bupropion (10).

Different demographic and clinical characteristics are associated with the use of psychoactive substances among persons on MMT. Demographic characteristics include younger age (11-13), male gender (14), unemployment and lower levels of education (12), while clinical characteristics include poor health condition (e.g. depression) (13). The use of psychoactive substances in persons on MMT can be different and it has not been sufficiently investigated at the level of geographical regions (14,15).

Therefore, the aim of this study was to determine the prevalence and modes of psychoactive substance use in patients on MMT at the University Clinical Center of Vojvodina, Novi Sad (Serbia), as well as to propose appropriate measures for the optimization of treatment outcomes.

Methods

The study was conducted at the Methadone Center within the Clinic for Psychiatry of the University Clinical Center of Vojvodina, Novi Sad (Serbia) from August to October 2022. The role of the Methadone Center is to implement, conduct and control the implementation of MMT in the region (16).

The study included patients on MMT who agreed to be included, which they confirmed by signing the written consent. They were older than 18, they had the previous history of unsuccessful attempts to treat addiction, strong motivation for getting cured with the help of maintenance therapy and one of international diagnostic criteria of opioid addiction (17).

Data on sociodemographic characteristics and use of psychoactive substances were collected through patient interviews at the Methadone Center immediately after methadone was dispensed. The interview lasted between 5 and 15 minutes. The following two instruments were used for the collection of data: the General questionnaire on sociodemographic characteristics and the ASSIST questionnaire (Alcohol, Smoking and Substance Involvement Screening Test) on the use of psychoactive substances (18).

The general questionnaire was specially developed for the needs of this study. It included seven questions relating to age (years), sex (male/female), marital status (single, married, divorced, widowed), children (yes/no), education (elementary, high school, college, university), employment (yes/no) and place of residence (town/village).

The ASSIST questionnaire was developed by the World Health Organization because it recognized the use of psychoactive substances (nicotine, alcohol, cannabis, cocaine, amphetamine and similar stimulants, sedatives and hypnotics, hallucinogens, inhalants, opioids and others) as a risk to public health (18). It contains eight questions based on which data can be obtained on the use of psychoactive substances at any time in life or in the last three months preceding the research (never/one to two times,/monthly/weekly/daily or almost daily), as well as problems related to their use.

The above mentioned questions are closed-ended with the provided answers which are scored. The total score ranges between 0 and 39 (except for nicotine where the score ranges between 0 and 31), and its interpretation is as follows: low risk of developing addiction if the score ranges between 0 and 3 (except for alcohol where the score ranges between 0 and 10), moderate risk if the score ranges between 4 and 26 (except for alcohol where the score ranges between 11 and 26), and high when the score is > 27 (18).

The collected data were numerically described with the help of descriptive statistics measures. Frequency measures (numbers, proportions) were used for the numerical description of qualitative data, while measures of central tendency (mean value) and variability measures (range, standard deviation) were used for the numerical description of quantitative data. Descriptive statistics was performed in the statistical program IBM Statistics SPSS for Windows version 20.0 (IBM Corporation, Armonk, New York).

The study followed the principles and ethical norms of the Declaration of Helsinki, and it was approved by the Ethics Committee of the University Clinical Center of Vojvodina, Novi Sad (Serbia) (number 00-08/332).

Tabela 1. Sociodemografske karakteritike pacijenata na metadonskoj supstitucinoj terapiji u Univerzitetskom kliničkom centru Vojvodine (N=60)

Karakteristike	N	%
Uzrast (godine) (AS ± SD)	42,18	6,33
Pol		
Muiški	45	75,0
Ženski	15	25,0
Bračni status		
Neoženjen/neudata	39	65,0
Oženjen/udata	10	16,7
Razveden/razvedena	8	13,3
Udovac/udovica	3	5,0
Deca		
Da	20	33,3
Ne	40	66,7
Obrazovanje		
Osnovna škola	9	15,0
Srednja škola	47	78,3
Viša škola	3	5,0
Visoka škola	1	1,7
Zaposlenost		
Da	13	21,7
Ne	47	78,3
Mesto stanovanja		
Grad	46	76,7
Selo	14	23,3

AS – aritmetička sredina, SD - standardna devijacija.

koja su prethodila istraživanju bila u opsegu od 1,7% (za halucinogen meskalin) do 98,3% (za nikotin) (tabela 2).

Prevalencija upotrebe legalnih naspram nelegalnih psihoaktivnih supstanci je predstavljena u tabeli 3. Tri (5%) pacijenta su upotrebljavala nelegalne psihoaktivne supstance (kanabis, kokain i meskalin) unutar tri meseca koja su prethodila istraživanju, uglavnom povremeno (Tabela 2). Takođe, jedan pacijent je upotrebljavao dve psi-

Tabela 2. Prevalencija upotrebe psihoaktivnih supstanci kod pacijenata na metadonskoj supstitucionoj terapiji u Univerzitetskom kliničkom centru Vojvodine (N=60)

Psihoaktivna supstanca	Celoživotna		Poslednja 3 meseca	
	N	%	N	%
Nikotin	59	98,3	59	98,3
Alkohol	60	100,0	6	10,0
Kanabis	54	90,0	2	3,4
Kokain	50	83,3	1	1,7
Amfetaminski stimulansi	55	91,7	0	0,0
Inhalanti	40	66,7	0	0,0
Sedativi/Hipnotici	52	86,7	0	0,0
Halucinogeni	47	78,3	1	1,7
Opioidi	60	100,0	0	0,0
Drugi lekovi	0	0,0	0	0,0

*Učestalost upotrebe psihoaktivnih supstanci: nikotin – svakodnevno (59 pacijenata); alkohol – svakodnevno (2 pacijenta) i jedan do dva puta nedeljno (4 pacijenta); kanabis – svakodnevno (1 pacijent) i jedan do dva puta nedeljno (1 pacijent); kokain – jedanput nedeljno (1 pacijent), meskalin: jedanput unutar poslednja tri meseca (1 pacijent).

Table 1. Sociodemographic characteristics of patients on methadone maintenance therapy at the University Clinical Center of Vojvodina (N=60)

Characteristics	N	%
Age (Years) (Mean±SD)	42.18	6.33
Sex		
Male	45	75.0
Female	15	25.0
Marital status		
Single	39	65.0
Married	10	16.7
Divorced	8	13.3
Widowed	3	5.0
Children		
Yes	20	33.3
No	40	66.7
Education		
Elementary school	9	15.0
High school	47	78.3
College (three years)	3	5.0
University	1	1.7
Employment		
Yes	13	21.7
No	47	78.3
Place of living		
Town / city	46	76.7
Village	14	23.3

SD - standard devijation

Results

In total, 60 patients on MMT were included in the study. Their sociodemographic characteristics are presented in Table 1. On average, they were 42.18 years old (SD=6.33; minimum 30 and maximum 60 years). They were mostly male (75.0%), with a high school diploma (78.3%), unemployed (78.3%) and almost two thirds were single (65%).

The lifetime prevalence of the use of psychoactive substances ranged from 66.7%

Table 2. Prevalence of psychoactive substance use in patients on methadone maintenance therapy at the University Clinical Center of Vojvodina (N=60)

Psychoactive substance	Lifetime		Last 3 months*	
	N	%	N	%
Tobacco products	59	98.3	59	98.3
Alcohol	60	100.0	6	10.0
Cannabis	54	90.0	2	3.4
Cocaine	50	83.3	1	1.7
Amphetamine-type stimulants	55	91.7	0	0.0
Inhalants	40	66.7	0	0.0
Sedatives/Hypnotics	52	86.7	0	0.0
Hallucinogens	47	78.3	1	1.7
Opioids	60	100.0	0	0.0
“Other” drugs	0	0.0	0	0.0

*Frequency of use of psychoactive substances: nicotine - daily (59 patients); alcohol - daily (2 patients) and once to twice a week (4 patients); cannabis – daily (1 patient) and once to twice a week (1 patient); cocaine – once a week (1 patient), mescaline: once in the last three months (1 patient).

Tabela 3. Upotreba legalnih i nelegalnih psihoaktivnih supstanci kod pacijenata na supstitucionoj terapiji metadonom u Univerzitetskom kliničkom centru Vojvodine (N=60)

Psihoaktivna supstanca	Celoživotna		Poslednja 3 meseca	
	N	%	N	%
Legalne	60	100	59	98,3
Nelegalne	60	100	3	5,0

hoaktivne supstance (kokain i kanabis) unutar tri meseca koja su prethodila istraživanju.

Rizik od razvoja zavisnosti od psihoaktivnih supstanci je procenjen na osnovu ASSIST skora (tabela 4). Za sedam supstanci (nikotin, kokain, amfetamin i slični stimulansi, inhalanti, sedativi/hipnotici, halucinogeni i opioidi), ASSIST skor je bio u opsegu 0-3 ili u opsegu 4-26, što je ukazivalo da su pacijenti imali nizak ili umereni rizik od razvoja zavisnosti.

Za dve supstance (alkohol i kanabis), ASSIST skor je bio u tri opsega (0-3, 4-26 i iznad 27) što ukazuje da su pacijenti imali nizak, umereni ili visok rizik od razvoja zavisnosti (Tabela 4). Kada je reč o visokom riziku od razvoja zavisnosti, kod dva pacijenta (3,4%) se odnosio na alkohol a kod jednog pacijenta (1,7%) na kanabis (Tabela 4).

Diskusija

Celoživotna upotreba psihoaktivnih supstanci (legalnih i nelegalnih) bila je veoma zastupljena (npr. nikotin: 98,3%; alkohol: 100%; sedativi/hipnotici: 86,7%; kanabis: 90%) među pacijentima u Metadonskom centru Univerzitetskog kliničkog centra Vojvodine. I to je uobičajeni nalaz epidemioloških istraživanja (19-21), gde, po pravilu, upotreba nikotina i/ili alkohola prethodi upotrebi kanabisa, a upotreba kanabisa prethodi upotrebi drugih nelegalnih psihoaktivnih supstanci.

Kada je reč o upotrebi psihoaktivnih supstanci unutar tri meseca koja su prethodila istraživanju, najzastupljenija je bila upotreba nikotina. Gotovo svi pacijenti na MST su bili pušači (98,3%). Rezultati su uporedivi sa rezultatima drugih istraživanja gde je upotreba nikotina takođe bila izuzetno zastupljena (>80%) (6,22). Značajna proporcija pušača među pacijentima na MST može se objasniti „korisnim" interakcijama. Naime, nikotin, kao i druge psihoaktivne supstance koje izazivaju zavisnost, aktivira mezolimbički put i povećava oslobađanje dopamina u zoni n*ucleus accumbens*, što pojačava efekte euforije koju prouzrokuje metadon. Takođe, nikotin može ublažiti neželjena dejstva metadona koja se ispoljavaju kao agitacija i uznemirenost. I, generalno, pojačanje efekata euforije i ublažavanje agitacije i uznemirenosti su razlozi zbog kojih pacijenti na MST koriste psihoaktivne supstance (23).

Upotreba alkohola u ovom istraživanju je bila druga po zastupljenosti. Naime, 10% pacijenata ga je povremeno (6,7%) ili svakodnevno (3,3%) konzumiralo unutar tri meseca koja su prethodi-

Tabela 4. Rizik od razvoja zavisnosti kod pacijenata na metadonskoj supstitucionoj terapiji u Univerzitetskom kliničkom centru Vojvodine (N=60)

Psihoaktivna supstanca	Nizak		Umereni		Visok	
	N	%	N	%	N	%
Nikotin	0	0,0	59	98,3	0	0,0
Alkohol	54	90,0	4	6,7	2	3,4
Kanabis	52	86,7	1	1,7	1	1,7
Kokain	49	81,7	1	1,7	0	0,0
Amfetaminski stimulansi	55	91,7	0	0,0	0	0,0
Inhalanti	40	66,7	0	0,0	0	0,0
Sedativi/Hipnotici	52	86,7	0	0,0	0	0,0
Halucinogeni	47	78,3	0	0,0	0	0,0
Opioidi	0	0,0	60	100	0	0,0
Drugi lekovi	0	0,0	0	0,0	0	0,0

*Rizik je procenjen na osnovu ASSIST skora.

Table 3. Use of legal and illegal psychoactive substances in patients on methadone maintenance therapy at the University Clinical Center of Vojvodina (N=60)

Psychoactive substances	Lifetime		Last 3 months	
	N	%	N	%
Legal	60	100	59	98.3
Illegal	60	100	3	5.0

(for inhalants) to 100% (for alcohol and opioids), while the prevalence of their use in the last three months preceding the study ranged from 1.7% (for hallucinogen mescaline) to 98.3% (for nicotine) (Table 2).

The prevalence of the use of legal psychoactive substances compared to illicit psychoactive substance use is presented in Table 3. Three (5%) patients had used illicit psychoactive substances (cannabis, cocaine, and mescaline) in the last three months preceding the study, mostly occasionally (Table 2). Also, one patient had used two psychoactive substances (cocaine and cannabis) in the last three months preceding the study.

The risk of developing addiction to psychoactive substances was assessed based on the ASSIST score (Table 4). For seven substances (nicotine, cocaine, amphetamine and similar stimulants, inhalants, sedatives/hypnotics, hallucinogens, and opioids), the ASSIST score ranged between 0-3 or between 4 and 26, which indicated that patients had a low or moderate risk of developing addiction.

For two substances (alcohol and cannabis), the ASSIST score had three ranges (0-3, 4-26, and above 27), which indicated that patients had a low, moderate or high risk of developing addiction (Table 4). When it comes to the high risk of developing addiction, in two patients (3.4%), this risk was connected with alcohol and in one patient (1.7%) with cannabis (Table 4).

Discussion

The lifetime use of psychoactive substances (legal and illegal) was highly prevalent (e.g. nicotine: 98.3%; alcohol: 100%; sedatives/hypnotics: 86.7%; cannabis: 90%) among patients at the Methadone Center of the University Clinical Center of Vojvodina. This is a common finding of epidemiological studies (19-21), where, as a rule, the use of nicotine and/or alcohol precedes the use of cannabis, while the use of cannabis precedes the use of other illicit psychoactive substances.

When it comes to the use of psychoactive substances in the last three months preceding the study, the most common was the use of nicotine. Almost all patients on MMT were smokers (98.3%). The results can be compared to the results of other studies, where the use of nicotine was also very common (>80%) (6,22). A significant proportion of smokers among patients on MMT can be

Table 4. Risk of developing dependence in patients on methadone maintenance therapy at the University Clinical Center of Vojvodina (N=60)

Psychoactive substances	Low		Moderate		High	
	N	%	N	%	N	%
Tobacco products	0	0.0	59	98.3	0	0.0
Alcohol	54	90.0	4	6.7	2	3.4
Cannabis	52	86.7	1	1.7	1	1.7
Cocaine	49	81.7	1	1.7	0	0.0
Amphetamine-type stimulants	55	91.7	0	0.0	0	0.0
Inhalants	40	66.7	0	0.0	0	0.0
Sedatives/Hypnotics	52	86.7	0	0.0	0	0.0
Hallucinogens	47	78.3	0	0.0	0	0.0
Opioids	0	0.0	60	100	0	0.0
“Other” drugs	0	0.0	0	0.0	0	0.0

*Rizik je procenjen na osnovu ASSIST skora.

la istraživanju. Rezultati nisu u skladu sa najvećim brojem epidemioloških istraživanja jer je u njima ta prevalencija bila između 25% i 35% (7-9). Uočena razlika se ne može povezati sa načinom na koji su podaci prikupljani, jer je upotreba alkohola u navedenim epidemiološkim istaživanjima, takođe, dobrovoljno prijavljivana. Ipak, moguće je da su pacijenti u ovom istraživanju nastojali da prijavljivanje bude socijalno prihvatljivo.

Prevalencija upotrebe kanabisa je bila 3,3% unutar tri meseca koja su prethodila istraživanju, dok je celoživotna prevalencija iznosila 90%. Sa druge strane, jedno istraživanje koje je sprovedeno na klinikama u pet kineskih provincija je ukazalo na prevalenciju upotrebe kanabisa od 0,3% unutar meseca koji je prethodio istraživanju, i celoživotnu prevalenciju od svega 4,4% (13). Nekonzistentni rezultati između istraživanja se mogu povezati sa razlikama u zakonskoj regulativi, dostupnosti, ceni i potentnosti kanabisa na nivou geografskih regiona (24,25). U Kini su, primera radi, na snazi striktne politike kažnjavanja za upotrebu, promet te proizvodnju psihoaktivnih supstanci uključujući i kanabis (26).

Samo jedan pacijent (1,7%) je povremeno koristio kokain unutar tri meseca koja su prethodila istraživanju. To je konzistentno sa rezultatima drugih istraživanja gde su pacijenti takođe dobrovoljno prijavljivali upotrebu nelegalnih, psihoaktivnih supstanci (7,13). Na primer, pacijenti na MST u tri vijetnamske klinike nisu koristili kokain (7), dok je u nekoliko regiona u Kini svega osam pacijenata (0,3%) koristilo kokain unutar meseca koji je prethodio intervju (13). U istraživanjima gde je urin analiziran na prisustvo psihoaktivnih supstanci, prevalencija upotrebe kokaina je bila značajno veća (25–60%) (27,28). Takođe, istraživanja ukazuju da pacijenti na MST koriste kokain povremeno (14,7%) ili redovno (10,7%) (28).

Razlika u prevalenciji upotrebe legalnih (nikotin, alkohol) i nelegalnih (kokain, kanabis, meskalin) psihoaktivnih susptanci je bila značajna u ovom istraživanju. Nikotin je koristilo 98,3% pacijenata, a zatim alkohol 10%, kokain 1,7%, kanabis 3,3% i meskalin 1,7% pacijenata. Slična razlika je uočena i u drugim istraživanjima (7,13). Na primer, Le i saradnici su ukazali da alkohol koristi 24,8%, cigarete 68,6% i nelegalne psihoaktivne supstance 6% pacijenta na MST (7). Razlika u upotrebi legalnih i nelegalnih psihoaktivnih supstanci može se povezati sa pristrasnošću prijavljivanja (engl. *reporting bias*). *Khalili* i saradnici su tako sproveli jedno istraživanje kako bi procenili validnost prijavljivanja upotrebe psihoaktivih supstanci (opiuma, metadona, amfetamina i kanabisa). Kada je reč o opioidima, 4,2% pacijenata je prijavilo njihovu upotrebu, a 8,5% pacijenata je imalo pozitivan nalaz urina (29). S obzirom da upotreba psihoaktivnih supstanci smanjuje adherencu i kompromituje ishode MST, nosioci politika u nekim zemljama (npr. Kina) insistiraju da se kod pacijenata upotreba heroina prati (redovno ili povremeno) na osnovu analize urina (13).

Pacijenti su uglavnom imali ASSIST skor u opsegu od 0 do 3 za psihoaktivne supstance koje nisu upotrebljavali unutar tri meseca koja su prethodila istraživanju. To je ukazivalo na nizak rizik od razvoja zavisnosti pa nije zahtevalo intervenciju nego podršku i motivaciju da se psihoaktivne supstance ne zloupotrebljavaju u budućnosti (18).

Pacijenti koji su bili pušači (98,3%) su imali ASSIST skor u opsegu od 4 do 26, što je ukazivalo na umereni rizik od razvoja nikotinske zavisnosti. Kada se rezultati porede sa rezultatima drugih istraživanja uočava se značajna razlika (30-31). Do i saradnici su tako ukazali na umereni rizik od nikotinske zavisnosti kod 12,9% pacijenata u nekoliko metadonskih centara u Vijetnamu (31). Međutim, istraživači su za procenu rizika od nikotinske zavisnosti koristili Fagerstremov upitnik. Za razliku od ASSIST upitnika, on pacijente grupiše u pet grupa: „veoma nizak", „nizak", "umeren", „visok" ili „veoma visok" rizik od nikotinske zavisnosti. Ta razlika koja se odnosi na istraživačke metode otežava poređenje rezultata istraživanja.

Kao što je navedeno, pacijenti koji su bili pušači su imali umereni rizik od razvoja zavisnosti. S tim u vezi, kod njih je bila potrebna samo kratka intervencija odnosno informisanje o ASSIST skoru i verovatnoći javljanja zdravstvenih problema (18). Primera radi, nikotin, osim na nervnom, ispoljava neželjena dejstva i na kardiovaskularnom (arterijska hipertenzija) i respiratornom (infekcije, alergije, hronična opstruktivna bolest pluća, astma) sistemu, a katrani iz duvanskog dima se povezuju sa hroničnim bronhitisom, karcinomom pluća, jednjaka, pankreasa i mokraćne bešike (32).

Tri (5%) pacijenta su imala ASSIST skor iznad 27, što je ukazivalo na visok rizik od razvoja zavisnosti, alkoholne (2 pacijenta) ili kanabinoidne (1 pacijent). To je zahtevalo intervenciju kao što je upućivanje na specijalistički pregled i odgovarajuće lečenje (18).

explained by "beneficial" interactions. Namely, nicotine, like other psychoactive substances that cause addiction, activates the mesolimbic pathway and increases the release of dopamine in the nucleus accumbens zone, which enhances the effects of euphoria caused by methadone. Also, nicotine can alleviate the unwanted effects of methadone, which manifest as agitation and restlessness. Also, generally speaking, enhancing the effects of euphoria and alleviating agitation and anxiety are the reasons why patients on MMT use psychoactive substances (23).

The use of alcohol in this study was the second according to its prevalence. Namely, 10% of patients had consumed it occasionally (6.7%), or daily (3.3%) in the last three months preceding the study. The results are not in accordance with the largest number of epidemiological studies because the prevalence in these studies ranges between 25% and 35% (7-9). The observed difference cannot be connected to the way in which data were collected, because the use of alcohol in the above mentioned epidemiological studies was also voluntarily reported. However, it is possible that patients in this study tried to make reporting socially acceptable.

The prevalence of cannabis use was 3.3% in the last three months preceding the study, while the lifetime prevalence amounted to 90%. On the other hand, a study, which was conducted at clinics in five Chinese provinces, indicated the prevalence of cannabis use of 0.3% in the last month preceding the study, and a lifetime prevalence of only 4.4% (13). Inconsistent results between studies may be linked to differences relating to legal regulations, availability, price and potency of cannabis at the level of geographic regions (24,25). In China, for example, strict punishment policies are in force for the use, trafficking and production of psychoactive substances, including cannabis (26).

Only one patient (1.7%) had occasionally used cocaine in the last three months preceding the study. This is consistent with the results of other studies where patients also voluntarily reported the use of illicit psychoactive substances (7,13). For example, patients on MMT in three clinics in Vietnam did not use cocaine (7), while in several regions in China, only eight patients (0.3%) had used cocaine in the month preceding the interview (13). In studies, where urine was analyzed for the presence of psychoactive substances, the prevalence of cocaine was significantly higher (25-60%) (27,28). Also, studies indicate that patients on MMT use cocaine occasionally (14.7%) or regularly (10.7%) (28).

The difference in the prevalence of the use of legal (nicotine, alcohol) and illegal (cocaine, cannabis, mescaline) psychoactive substances was significant in this study. Nicotine was used by 98.3% of patients, followed by alcohol 10%, cocaine 1.7%, cannabis 3.3% and mescaline by 1.7% of patients. A similar difference was observed in other studies (7,13). For example, Le and associates indicated that 24.8% of patients on MMT used alcohol, 68.6% used cigarettes, and 6% used illegal psychoactive substances (7). The difference in the use of legal and illegal psychoactive substances can be associated with the reporting bias. Khalili and associates conducted a study to assess the validity of reporting the use of psychoactive substances (opium, methadone, amphetamine and cannabis). When it comes to opioids, 4.2% of patients reported their use, and 8.5% of patients had a positive urine test (29). Given that the use of psychoactive substances reduces adherence and compromises MMT outcomes, policy makers in some countries (e.g. China) insist that heroin use should be monitored in patients (regularly or occasionally) based on urinalysis (13).

Patients' ASSIST score mainly ranged between 0 and 3 for psychoactive substances that they had not used in the last three months preceding the study. This indicated a low risk of developing addiction, and therefore, it did not require intervention, but support and motivation so as not to abuse psychoactive substances in the future (18).

Patients who were smokers (98.3%) had an ASSIST score ranging between 4 and 26, which indicated a moderate risk of nicotine addiction. When the results are compared with the results of other studies, a significant difference is observed (30-31). Do et al. thus pointed to the moderate risk of nicotine addiction in 12.9% of patients in several methadone centers in Vietnam (31). However, the researchers used Fagerström Test to assess the risk of nicotine addiction. Unlike the ASSIST questionnaire, it groups patients into five groups: "very low", "low", "moderate", "high" or "very high" risk of nicotine addiction. This difference relating to research methods makes it difficult to compare research results.

Dakle, kod ovih pacijenata osim lečenja opioidne zavisnosti trebalo je razmotriti i lečenje alkoholne odnosno kanabinoidne zavisnosti.

Ovo istraživanje ima nekoliko nedostataka. Prvo, sprovedeno je u jednoj zdravstvenoj ustanovi i na malom uzorku, što može ograničiti generalizaciju zaključaka na druge zdravstvene ustanove i regione. Drugo, istraživanje je transverzalno (studija preseka) te stoga nije bilo moguće ustanoviti uzročno-posledičnu vezu između demografskih karakteristika i upotrebe psihoaktivnih supstanci. U te svrhe idealno bi bilo sprovesti longitudinalno istraživanje. Treće, podaci o dozi metadona, trajanju lečenja, prisustvu komorbiditeta, kao i o njihovom lečenju nisu prikupljani, što upućuje na potrebu da se prikupe, i da se istraži njihova veza sa upotrebom psihoaktivnih supstanci. Konačno, prikupljanje podataka o upotrebi nelegalnih psihoaktivnih supstanci kroz dobrovoljno prijavljivanje je moglo biti socijalno prihvatljivo i nerealno. Uprkos navedenim nedostacima, rezultati ovog istraživanja bi mogli biti od koristi kod planiranja javnozdravstvenih politika za metadonske centre.

Zaključak

Istraživanje je ukazalo na značajnu razliku u prevalenciji upotrebe legalnih i nelegalnih psihoaktivnih susptanci. S obzirom da su pacijenti dobrovoljno prijavljivali njihovu upotrebu, moguće je da su nastojali da prijavljivanje bude socijalno prihvatljivo. Stoga bi upotrebu psihoaktivnih supstanci trebalo pratiti na osnovu redovne i povremene analize urina. Konačno, tri pacijenta su imala ASSIST skor > 27, što je ukazalo na visok rizik od razvoja zavisnosti, alkoholne (2 pacijenta) odnosno kanabinoidne (1 pacijent). Zbog toga su potrebne intervencije, koje podrazumevaju upućivanje na specijalistički pregled i lečenje.

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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As noted, patients who were smokers had a moderate risk of developing addiction. In this regard, they only needed a short intervention, that is, information about the ASSIST score and the probability of occurrence of health problems (18). For example, nicotine, in addition to its adverse effects on the nervous system, has adverse effects on the cardiovascular (arterial hypertension) and respiratory (infections, allergies, chronic obstructive pulmonary disease, asthma) system, while tars from tobacco smoke are associated with chronic bronchitis, lung cancer, esophageal, pancreatic and bladder cancer (32).

Three (5%) patients had an ASSIST score above 27, which indicated a high risk of developing addiction, alcohol (2 patients) or cannabinoid (1 patient) addiction. This demanded intervention such as referring to a specialist examination and appropriate treatment (18). Therefore, in these patients, in addition to the treatment of opioid addiction, the treatment of alcohol or cannabinoid addiction should also be considered.

This study has several shortcomings. First, it was conducted in one healthcare institution on a small sample, which can limit the generalization of conclusions in other health institutions and regions. Second, the study is a transversal (cross-sectional) study, and therefore, it is impossible to prove a causal link between demographic characteristics and use of psychoactive substances. To conduct a longitudinal study would be ideal for this purpose. Third, data on methadone dose, duration of treatment, the presence of comorbidities, as well as their treatment were not collected, which indicates the need to collect them and to investigate their relationship with the use of psychoactive substances. Finally, the collection of data on the use of illicit psychoactive substances through voluntary reporting could have been socially acceptable and unreal. In spite of the above mentioned shortcomings, the results of this research could be of use when planning the public health policies for methadone centers.

Conclusion

The study indicated a significant difference in the prevalence of use of legal and illegal psychoactive substances. Considering the fact that patients reported their use voluntarily, it is possible that they tried to make their reporting socially acceptable. Therefore, the use of psychoactive substances should be monitored based on regular and occasional urinalysis. Finally, three patients had an ASSIST score > 27, which indicated a high risk of developing addiction, alcohol addiction (2 patients), that is, cannabinoid addiction (1 patient). Therefore, interventions are needed, including referring to a specialist examination and treatment.

Competing interests

The authors declared no competing interests.

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SKRINING MEDULARNOG KARCINOMA U OSOBA S ČVOROVIMA U ŠTITASTOJ ŽLEZDI

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SAŽETAK

Uvod/Cilj: Medularni karcinom štitaste žlezde (engl. *Medullary tyroid cancer* - MTC) je retka neuroendokrina neoplazma, koja nastaje iz parafolikularnih C ćelija, koje luče kalcitonin. Kalcitonin predstavlja osetljiv tumorski marker MTC, imajući u vidu da najveći broj obolelih ima povišene vrednosti istog. Ipak, ne postoji jedinstveni stav o upotrebi kalcitonina kao skrining testa za rano otkrivanje MTC kod osoba s čvorovima u štitastoj žlezdi. Cilj istraživanja je bio da se analizira mogućnost uvođenja kalcitonina kao skrining testa za rano otkrivanje MTC kroz prikaz jednog slučaja.
Prikaz bolesnika: U radu je prikazana pacijentkinja starosti 56 godina kojoj je prilikom sistematskog pregleda u desnom režnju štitne žlezde ustanovljeno prisustvo nodusa dijametra 10 x 8 mm i 5 x 4 mm. Laboratorijskom analizom utvrđene su blago povišene vrednosti kalcitonina (7,8 pg/mL, referentna vrednosti < 4,8 pg/mL). Test stimulacije kalcijumom bio je u referentnom rasponu, a vrednosti karcino-embrionalnog antigena uredne. Citološki pregled uzoraka aspiracione punkcije tankom iglom je odgovarao kategoriji T2 po *Bethesda* klasifikaciji (hronični limfocitni tireoiditis tipa Hašimoto). Na kontrolnom pregledu, sprovdenom posle 6 meseci, vrednosti kalcitonina nisu se značajno razlikovale u odnosu na prvobitne.
Zaključak: Kod prikazane pacijentkinje diskretno povišena koncentracija kalcitonina u serumu nije podrazumevala prisustvo MTC. Potrebna su dalja randomizovana klinička istraživanja kako bi se otklonile nesuglasice i utvrdile jedinstvene smernice za uvođenje kalcitonina kao skrining testa za MTC kod osoba sa čvorovima u štitastoj žlezdi.

Ključne reči: kalcitonin, medularni karcinom, štitasta žlezda, skrining

Uvod

Medularni karcinom štitne žlezde (engl. *Medullary thyroid cancer* - MTC) je retka neuroendokrina neoplazma (čini 4-10% svih karcinoma štitaste žlezde), koja nastaje iz parafolikularnih C ćelija koje luče kalcitonin (engl. *Calcitonin* - CTN) (1). Predominantno (75-80%) se javlja sporadično, ređe kao deo sindroma multiple endokrine neoplazije (engl. *Multiple endocrine neoplasia* - MEN) prvenstveno MEN IIA i MEN IIB i porodični MTC (engl. F*amilial medullary thyroid cancer* - FMTC) (2).

Sporadični MTC ima vrhunac incidencije u petoj ili šestoj deceniji života (2). Inicijalno se manifestuje kao solitarni čvor u gornje dve trećine štitaste žlezde (2). U vreme postavljanja dijagnoze cervikalna limfadenopatija je prisutna u oko 50% obolelih (1). Nasledni oblici se javljaju u mlađoj životnoj dobi (vrhunac incidencije u drugoj ili trećoj deceniji života) (2). Multicentrični su i bilateralni, varijabilne veličine (tumor manji od 1 cm ili tumor koji zauzima celu štitastu žlezdu i širi se na okolna meka tkiva) (1). Izolovani MTC-a ima relativno sporu progresiju (1). Nasledni oblik MTC-a ima agresivniji klinički tok, koji zavisi i od komorbiditeta (1).

Merenje CTN-a u krvi (bazalni CTN) primenjuje se kao skrining test, u diferencijalnoj dijagnozi, proceni odgovora na lečenje i za praćenje MTC (3-5). Osim toga, koristi se i test stimulacije pentagastrinom i kalcijum glukonatom (stimulisani CTN) (4,6). Iako pojedina Udruženja za štitastu žlezdu

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CASE REPORT

SCREENING FOR MEDULLARY CARCINOMA IN PEOPLE WITH THYROID NODULES

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SUMMARY

Background/Aim: Medullary thyroid cancer (MTC) is a rare neuroendocrine neoplasm, which arises from parafollicular C cells, which secrete calcitonin. Calcitonin is a sensitive tumor marker of MTC, bearing in mind that the majority of patients have elevated values of it. However, there is no consensus on the use of calcitonin as a screening test for the early detection of MTC in individuals with thyroid nodules. The aim of the research was to analyze the possibility of introducing calcitonin as a screening test for the early detection of MTC through a case report.
Case report: The paper presents a 56-year-old female patient who, during a systematic examination, was found to have nodules with a diameter of 10 x 8 mm and 5 x 4 mm in the right lobe of the thyroid gland. Laboratory analysis revealed slightly elevated calcitonin values (7.8 pg/mL, reference values < 4.8 pg/mL). The calcium stimulation test was within the reference range, and the carcino-embryonic antigen values were normal. Cytological examination of fine-needle aspiration puncture samples corresponded to category T2 according to the Bethesda classification (Chronic lymphocytic thyroiditis of the Hashimoto type). At the control examination, carried out after 6 months, calcitonin values did not differ significantly compared to the original ones.
Conclusion: In the presented patient, the discreetly elevated concentration of calcitonin in the serum did not imply the presence of MTC. Further randomized clinical trials are needed to resolve controversies and establish uniform guidelines for the introduction of calcitonin as a screening test for MTC in individuals with thyroid nodules.

Key words: calcitonin, medullary carcinoma, thyroid gland, screening

Introduction

Medullary thyroid cancer (MTC) is a rare neuroendocrine neoplasm (accounts for 4 to 10% of all thyroid cancers), which arises from parafollicular C cells that secrete calcitonin (CTN) (1). Predominantly (75-80%) it occurs sporadically, less often as part of multiple neuroendocrine neoplasia (MEN), primarily MEN IIA and MEN IIB and familial medullary thyroid cancer (FMTC) (2).

Sporadic MTC has a peak incidence in the fifth or sixth decade of life (2). It initially manifests as a solitary nodule in the upper two-thirds of the thyroid gland (2). At the time of diagnosis, cervical lymphadenopathy is present in about 50% of patients (1). Hereditary forms occur at a younger age (peak incidence in the second or third decade of life) (2). They are multicentric and bilateral, variable in size (a tumor smaller than 1 cm or a tumor that occupies the entire thyroid gland and spreads to the surrounding soft tissues) (1). Isolated MTC has a relatively slow progression (1). The hereditary form of MTC has a more aggressive clinical course, which also depends on comorbidities (1).

The measurement of CTN in the blood (basal CTN) is used a screening test in a differential diagnosis, in the evaluation of response to treatment and for monitoring MTC (3-5). In addition, a stimulation test with pentagastrin and calcium gluconate (stimulated CTN) is also used (4,6). Although some Thyroid Associations recommend the use of CTN as a screening test for

preporučuju upotrebu CTN-a kao skrining testa za MTC kod osoba s čvorovima u štitastoj žlezdi, njegova vrednost još uvek nije potpuno razjašnjena (6). Cilj istraživanja je bio da se analizira mogućnost uvođenja kalcitonina kao skrining testa za rano otkrivanje MTC kroz prikaz jednog slučaja.

Prikaz slučaja

Prikom sistematskog pregleda pacijentkinje starosti 56 godina u desnom režnju štitaste žlezde ustanovljeno je prisustvo nodusa dijametra 10 x 8 mm i 5 x 4 mm. Pacijentkinja je dobrog opšteg zdravlja i do sada nije imala bilo kakve tegobe koje bi ukazivale na oboljenje štitaste žlezde. Negira bolesti od značaja za hereditet. Nakon laboratorijske obrade utvrđuju se blago povišene vrednosti kalcitonina (7,8 pg/mL, referentna vrednosti < 4,8 pg/mL) i snižene vrednosti slobodnog tiroksina (10,1 pmol/L, referentne vrednosti 12,00-22,00 pmol/L). Vrednosti tireostimulirajućeg hormona, slobodnog tiroksina i slobodnog trijodotironina su bile u referentnom rasponu. Pacijentkinja se upućuje specijalisti nuklearne medicine koji indikuje test stimulacije kalcijumom i određivanje vrednosti karcino-embrionalnog antigena. Test stimulacije kalcijumom nije ukazivao na prisustvo MTC, vrednosti karcino-embrionalnog antigena su bile uredne. Specijalista nuklearne medicine uradio je i aspiracionu punkciju tankom iglom (engl. *Fine Needle Aspiration Biopsy* - FNA). Citološki pregled uzoraka FNA je odgovarao kategoriji T2 po *Bethesda* klasifikaciji (Hronični limfoctni tireoditis tipa Hašimoto). Uključuje se supstituciona terapija levotiroksin natrijum. Na kontrolnom pregledu posle 6 meseci vrednosti tiroksina bile su u referentnom rasponu, dok se vrednosti kalcitoina nisu razlikovale od prvobitnih. Dimenzije nodusa ostale su nepromenjene.

Diskusija

Ovaj prikaz slučaja ukazuje na činjenicu da diskreno povišene vrednosti kalcitonina u serumu pacijentkinje nisu podrazumevale prisustvo MTC. Potrebna su dalja istraživanja kako bi se otklonile nesuglasice i utvrdile jednistvene smernice za primenu CTN kao skrining testa za MTC u osoba s čvorovima u štitastoj žlezdi.

CTN je polipeptidni hormon izgrađen od 32 aminokiseline kojeg uglavnom proizvode parafolikularne C ćelije štitaste žlezde (3). Predstavlja osetljiv tumorski marker MTC-a, jer najveći broj obolelih od MTC-a imaju povišene vrednosti ovog polipeptidnog hormona (7). Ipak, ne postoji jedinstveni stav o upotrebi kalcitonina za rano otkrivanje (skrining) MTC-a u osoba s čvorovima u štitastoj žlezdi (8).

Rutinsko merenja CTN-a može značajno poboljšati stopu preživljavanja i smanjiti troškove zdravstvene zaštite obolelih osoba (9). Nadalje, verodostojnost ultrazvučnog TI-RADS (od engl. *European Thyroid Imaging Reporting and Data System*) sistema stratifikacije rizika novootkrivenih čvorova u štitastoj žlezdi je suboptimalna (9). Takođe, citološki pregled uzoraka FNA prepoznaje najveći deo papilarnog karcinoma štitaste žlezde, ali samo više od polovine MTC-a (9).

Postoji nekoliko argumenata koji se protive rutinskom merenju CTN-a. Prvo, ne postoji međunarodni konsenzus o isplativosti ovog skrining testa (9,10), jer se primenjuje za otkrivanje retkog malignoma. Prevalencija MTC u osoba s čvorovima u štitastoj žlezdi iznosi između 0,11% i 0,85%, s medijanom od 0,32% (9). Takođe, približno polovina MTC identifikovanih rutinskim merenjem CTN su okultni MTC (10). Postoji mišljenje da okultni MTC imaju nizak maligni potencijal, kao i da nikada ne evoluiraju u veći i agresivniji tumor (10). Prevalencija okultnog MTC-a, na osnovu podataka studija baziranih na autopsijama, je oko 0,14% (6).

Osim toga, eminentni autori navode rizik od lažno pozitivnih i lažno negativnih rezultata (10). Naime, vrednosti serumskog CTN-a mogu se meriti s radio-imuno testom - (engl. *Radioimmunoassay* - RIA), imuno-radiometrijskim testom (engl. *Immunoradiometry assay* - IRMA) i imuno-hemiluminescentnim testom (engl. *Immunochemiluminescent assay* - ICMA) (11). RIA test identifikuje monomerni i dimerni oblik kalcitonina, kao i njegove prekursore (11). S druge strane, IRMA i ICMA test identifikuju zreli, monomerni oblik CTN (11). IRMA i ICMA test omogućavaju stvaranje „sendviča“ od antitela za hvatanje, epitopa CTN i signalnih antitela, ostavljajući iza sebe višak nevezanih signalnih antitela (7,12). Izvode se u jednom ili dva koraka sa monoklonskim ili monoklonskim i poliklonskim antitelima (7,12). Lažno pozitivni rezultati mogu nastati kao posledica visokih vrednosti uree, kreatinina i vitamina C u serumu prilikom upotreba RIA testa, kao i umrežavanja poliklonskih antitela ukoliko se primenjuje analiza u jednom koraku (7,12). Lažno

MTC in persons with nodules in the thyroid gland, its value has not be completely clarified yet (6). The aim of the study was to analyze the possibility of introducing calcitonin as a screening test for the early detection of MTC through a case report.

Case report

During a systematic examination of a 56-year-old female patient, the presence of nodules with a diameter of 10 x 8 mm and 5 x 4 mm was observed in the right lobe of the thyroid gland. The patient's general health status was good and she had not had any complaints that would indicate thyroid disease. She denied diseases of importance for heredity. After laboratory analysis, slightly elevated calcitonin values were found (7.8 pg/mL, reference values < 4.8 pg/mL), as well as lower values of free thyroxine (10.1 pmol/L, reference values 12.00-22.00 pmol/L). The values of thyroid stimulating hormone, free thyroxine and free triiodothyronine were within the reference range. The patient was referred to a nuclear medicine specialist who indicated a calcium stimulation test and the determination of carcino-embryonic antigen value. A calcium stimulation test did not indicate the presence of MTC, while the values of carcino-embryonic antigen were within a normal range. A nuclear medicine specialist performed a fine needle aspiration biopsy (FNA). The cytological examination of FNA samples corresponded to T2 category according to Bethesda classification (chronic lymphocytic thyroiditis or Hashimoto's disease). The substitution therapy levothyroxine sodium was prescribed. At the control examination after six months, thyroxine values were within a normal range, while calcitonin values did not differ from original values. The dimensions of nodules remained unchanged.

Discussion

This case report points to the fact that slightly elevated calcitonin values in the patient's serum did not imply the presence of MTC. Further research is needed to resolve controversies and establish uniform guidelines for the use of CTN as a screening test in persons with thyroid nodules.

CTN is a polypeptide hormone made of 32 amino acids, which is mainly produced by parafollicular C cells of the thyroid gland (3). It represents a sensitive tumor marker of MTC, because most of the patients with MTC have elevated values of this polypeptide hormone (7). However, there is no uniform attitude towards the use of calcitonin for the early detection (screening) of MTC in persons with thyroid nodules (8).

Routine measurements of CTN can significantly improve the survival rate and reduce the costs of health care of patients (9). Furthermore, the reliability of the ultrasound TI RADS (European Thyroid Imaging Reporting and Data System) risk stratification system for newly detected thyroid nodules is suboptimal (9). Also, the cytological examination of FNA samples recognizes the majority of papillary carcinomas of the thyroid gland, but only more than half of MTCs (9).

There are several arguments against routine CTN measurement. First, there is no international consensus on the cost-effectiveness of this screening test (9,10), because it is applied for the detection of rare malignancy. The prevalence of MTC in persons with thyroid nodules ranges between 0.11% and 0.85%, with the median prevalence of 0.32% (9). Also, approximately half of MTCs identified by routine CTN measurement are occult MTCs (10). There is an opinion that occult MTCs have a low malignant potential, and that they never evolve into a larger and more aggressive tumor (10). The prevalence of occult MTC, according to the studies based on autopsies, is about 0.14% (6).

In addition, eminent authors state the risk of false positive and false negative results (10). Namely, the values of serum CTN can be measured by radioimmunoassay (RIA), immuneradiometry assay (IRMA) and immunochemiluminiscent assay (ICMA) (11). The RIA assay identifies the monomer and dimer forms of calcitonin, as well as its precursors (11). On the other hand, the IRMA and ISMA assays identify the mature, monomer form of CTN (11). The IRMA and ICMA assays enable the creation of a "sandwich" made of capture antibodies, epitopes of CTN and signaling antibodies, leaving behind the excess of unbound signaling antibodies (7,12). They are conducted in one or two steps with monoclonal or monoclonal and polyclonal antibodies (7,12). False positive results may occur as a consequence of high values of urea, creatinine and vitamin C in the serum when using the RIA assay, as well as the crosslinking of polyclonal antibodies when the analysis is administered in one step (7-12). A false negative result may cause a "high-dose hook" effect (7,12). One should know that in case of extremely high

negativan rezultat može uzrokovati „efekat kuke" (engl. kao „*high dose hook*") (7,12). Treba znati da su prilikom ekstremno visoke koncentracije kalcitonina u analizi u jednom koraku sva antitela (uključujući i signalna antitela) zasićena epitopima što sprečava stvaranje sendviča (7,12). Veoma retko „blokirajuća" poliklonska antitela prilikom analize u jednom koraku mogu proizvesti lažno niske vrednosti CTN-a (7).

Sekundarna hiperplazija C ćelija, prisutna u bolestima štitaste žlezde (hronični tiroiditis, papilarni ili folikularni karcinom štitaste žlezde) i drugim bolestima (terminalna bubrežna insuficijencija, hiperparatireoidizam i hipergastrinemija) uzrokuje porast vrednosti serumskog CTN-a (10,13). Nekoliko vrsta neuroendokrinih tumora uključujući paragangliom, feohromocitom, vipom, inzulinom, karcinoid želuca i mikrocelularni tumor pluća može ektopično lučiti kalcitonin (6). Treba naglasiti da neuroendokrini tumori uglavnom proizvode manje CTN-a po gramu tkiva od MTC-a i ne povećavaju svoje izlučivanje CTN-a prilikom stimulacijskog testiranja (10).

Kontinuirana primena inhibitora protonske pumpe u periodu od 2 do 4 meseca povećava koncentraciju CTN-a u serumu (11). Reč je o lekovima koji uzrokuju stalnu stimulaciju gastrinskih ćelija antruma želuca i hipersekreciju gastrina (11). Osim toga, povećano izlučivanje CTN-a uzrokuju glukokortikosteroidi, beta blokatori, antagonisti peptida srodnog kalcitoninu, glukagon, enteroglukagon i pankreozimin (10,11).

S kliničkog aspekta, nepostojanje fiksnog praga bazalnog i stimulisanog CTN u identifikovanju ili isključivanju MTC-a sprečava univerzalno prihvaćanje skrininga kod osoba s čvorovima u štitastoj žlezdi (9,10). Iako smernice preporučuju uspostavljanje vlastitih graničnih vrednosti bazalnog i stimulisanog CTN-a u svakoj laboratoriji, postojanje različitih raspona uveliko pridonosi navedenim poteškoćama (10). Nadalje, vrednosti CTN-a variraju u zavisnosti od individualnih karakteristika i stila života osobe (9-11). Muškarci imaju dvostruko više C ćelija i posledično više vrednosti CTN-a (<8,5 pg/ml) u odnosu na žene (<5 pg/ml) (11). Više vrednosti CTN-a utvrđene su u dece i osoba mlađe životne dobi (10,11). U prisustvu ograničenih informacija treba biti oprezan u definisanju graničnih vrednosti u dece uzrasta < 3 godine (10,11). Vrednosti CTN su povišne u pušača (10,11).

Osim toga, test stimulacije pentagastrinom je neophodno tumačiti ne samo kao apsolutnu vrednost, već i u odnosu na bazalnu vrednost CTN-a i, što je važnije, stepen povećanja CTN-a nakon podražaja (10). MTC predominantno podrazumeva minimalno povećanje od 160% (10). Rezulati dosadašnjih istraživanja o tumačenju i daljem postupanju u odnosu na vrednosti bazalnog i stimulisanog CTN-a prikazani su u tabeli 1 (10,11).

CTN negativan MTC je iznimno redak (u literaturi je opisano 49 slučajeva CTN negativnih MTC-a) (14). Iako patofiziologija CTN negativnog MTC-a još uvek nije utvrđena, kao mogući uzroci navode se izmenjeni mehanizam sekrecije C ćelija, proizvodnja aberantnih prekursora CTN-a, koje ne prepoznaju testna antitela, ektopično poreklo timusa i „efekat kuke" (14).

U Sjedinjenim Američkim Državama i Evropi postoji ograničena dostupnost pentagastrina, koji se smatra najboljim testom stimulacije CTN-a (10).

Retrospektivno istraživanje grupe autora iz Nemačke među 12.984 osoba s čvorovima u štitas-

Tabela 1. Tumačenje i indikacije u odnosu na vrednosti bazalnog i stimulisanog kalcitonina (adaptirano prema referencama 10 i 11)

	Tumačenje	Indikacija
Bazalni kalcitonin		
≤ 10–20 pg/ml	Normalan	–
20–50 pg/ml	Nizak rizik od medularnog karcinoma štitaste žlezde (MTC)	Test stimulacije pentagastrinom/ kalcijumom glukonatom
50-100 pg/ml	Umjeren rizik od MTC	Test stimulacije pentagastrinom/ kalcijumom glukonatom
>100 pg/ml	Izuzetno visok rizik od MTC	Operativni zahvat
Test stimulacije pentagastrinom/ kalcijum glukonatom		
< 30–50 pg/ml	Normalan	–
50-100 pg/ml	Izuzetno visok rizik od hiperplazija C ćelija	Operativni zahvat
> 100 pg/ml	Izuzetno visok rizik od MTC	Operativni zahvat

concentration of calcitonin in one-step analysis, all antibodies (including the signaling antibodies) are saturated with epitopes, which prevents the creation of the sandwich (7,12). Very rarely, "blocking" polyclonal antibodies during one-step analysis can produce false low values of CTN (7).

The secondary hyperplasia of C cells, present in diseases of the thyroid gland (chronic thyroiditis, papillary or follicular thyroid carcinoma) and other diseases (terminal renal failure, hyperparathyroidism and hypergastrinemia) causes an increase in serum CTN values (10,13). Several types of neuroendocrine tumors including paraganglioma, pheochromocytoma, vipoma, insulinoma, gastric carcinoid tumors and microcellular lung cancer can ectopically secrete calcitonin (6). It should be emphasized that neuroendocrine tumors usually produce less CTN per gram of tissue in comparison to MTC and they do not increase their CTN secretion during stimulation testing (10).

A continuous application of proton pump inhibitors in the period of 2 to 4 months increases the concentration of CTN in the serum (11). It is a drug that causes a constant stimulation of gastrin cells of the gastric antrum and hypersecretion of gastrin (11). In addition, the increased secretion of CTN is caused by glucocorticosteroids, beta blockers, calcitonin gene-related peptide antagonists, glucagon, enteroglucagon and pancreozymin (10,11).

From the clinical point of view, the lack of the fixed threshold of basal and stimulated CTN in identifying or excluding MTC prevents the universal acceptance of screening among patients with thyroid nodules (9,10). Although the guidelines recommend that each laboratory should establish its own threshold values for basal and stimulated CTN, the existence of different ranges greatly contributes to the above mentioned difficulties (10). Furthermore, CTN values vary depending on the individual characteristics and lifestyle of a person (9-11). Men have twice as many C cells and consequently higher values of CTN (<8.5 pg/ml) in comparison to women (<5 pg/ml) (11). Higher CTN values were found in children and younger persons (10,11). Due to the limited information, one should be careful when defining the reference values in children aged <3 years (10,11). CTN values are higher in smokers (10,11).

In addition, the pentagastrin stimulation test should be interpreted not only as an absolute value, but also in relation to the basal value of CTN, and what is more important, the degree of increase of CTN after stimulation (10). MTC predominantly implies the minimum increase of 160% (10). The results of previous studies on the interpretation and further activities in relation to the values of basal and stimulated CTN are shown in Table 1 (10,11).

CTN-negative MTC is extremely rare (49 cases of CTN-negative MTCs have been described in the literature) (14). Although the pathophysiology of CTN-negative MTC has not been established yet, possible causes included an altered mechanism of C cell secretion, production of aberrant CTN precursors, which are not recognized by the test antibodies, the ectopic origin of the thymus, and the "hook" effect (14).

In the United States of America and Europe, there is the limited availability of pentagastrin, which is considered to be the best CTN stimulation test (10).

Table 1. Interpretation and indications according to the values of basal and stimulated calcitonin (adapted based on references 10 and 11)

	Interpretation	Indication
Basal calcitonin		
≤ 10–20 pg/ml	Normal	–
20–50 pg/ml	Low risk of medullary thyroid cancer (MTC)	Pentagastrin/calcium gluconate stimulation test
50-100 pg/ml	Moderate risk of MTC	Pentagastrin/ calcium gluconate stimulation test
>100 pg/ml	Extremely high risk of MTC	Surgical procedure
Pentagastrin/calcium gluconate stimulation test		
< 30–50 pg/ml	Normal	–
50-100 pg/ml	Extremely high risk of C cells hyperplasia	Surgical procedure
> 100 pg/ml	Extremely high risk of MTC	Surgical procedure

toj žlezdi preporučilo je skrining MTN-a u prisustvu i vrlo malih čvorova štitaste žlezde, nezavisno od ultrazvučnog izgleda (15). Testovi stimulacije pentagastrinom i kalcijum glukonatom nisu identifikovani kao superiorni u odnosu na bazalni CTN (15). U rutinskom merenju CTN-a u 5.817 osoba s čvorovima u štitastoj žlezdi, grupa istraživača u Italiji je bazalni CTN opisala kao vrlo osetljiv test u ranoj dijagnozi MTC-a, iako su u većini slučajeva bili potrebni potvrdni testovi stimulacije pentagastrinom (16). U istraživanju grupe autora u Sjedinjenim Američkim Državana, utvrđena je isplativost skrininga MTN-a u osoba s čvorovima u štitastoj žlezdi (sa odnosom troškova i koristi koji odgovara kolonoskopkom i mamografskom skriningu) (17). Metaanaliza sedamnaest studija sa ukupno 74.407 učesnika, autora iz Nemačke, ustanovila je da i bazalni CTN i kombinacija bazalnog i petagastrinom stimuliranog CTN-a imaju visoku osetljivost i specifičnost u otkrivanju MTC-a (7). Međutim, u osoba s intermedijarnim vrednostima CTN-a (bazalni CTN u žena < 30 pg/mL, u muškaraca < 60 pg/mL) treba razmotriti praćenje obolelih (strategija čekanja) kako bi se izbegli prekomerni operativni zahvati (7).

Test stimulacije kalcijum glukonatom nije preporučen kao skrining test za MTC (7). Pregled 16 kohortnih (retrospektivnih i prospektivnih) studija sa ukupno 72.368 učesnika, grupe autora iz Holandije, nije podržao dovoljno dokaza za sprovođenje skrininga MTN-a u osoba s čvorovima u štitastoj žlezdi (5). Kao alternativu autori predlažu merenje CTN-a u osoba s suspektnom kliničkom slikom, neodređenim nalazom FNA ili oboje (5).

Preporuke strukovnih udruženja o skriningu MTN nisu univerzalne (18,19). Evropsko udruženje za štitastu žlezdu (engl. *European Thyroid Association*, ETA) je, 2006. godine, preporučilo skrining MTC-a u osoba s novootkrivenim čvorovima u štitastoj žlezdi (12). Smernice Američkog udruženje za štitastu žlezdu (engl. *American Thyroid Association*, ATA), Američkog udruženja kliničkih endokrinologa (engl. *American Association of Clinical Endocrinologists*, AACE), Američkog društva endokrinologa (engl. *American Colege of Endocrinologist*, ACE) i Italijanskog društva kliničkih endokrinologa (engl. *Italian Association of Clinical Endocrinologists*, AME) su neodređene po navedenom pitanju (18).

Zaključak

U prikazanom slučaju diskreno povišene vrednosti CTN u serumu nisu ukazivale na postojanje MTC-a. Potrebna su dalja randomizirana klinička istraživanja kako bi se otklonile nesuglasice i utvrdile jednistvene smernice za primenu MTC-a, kao skrining testa, u osoba s čvorovima u štitastoj žlezdi. MTC je retka i potencijalno vrlo agresivna neuroendokrina neoplazma, predominantno ukoliko se dijagnoza postavi u uznapredovalim stadijumima bolesti. Zbog toga je neophodno sagledati sve prednosti i nedostatke da bi se merenje CTN-a, kao skrining test, koristilo u cilju ranog otkrivanja MTC-a u osoba s čvorovima u štitastoj žlezdi.

Konflikt interesa

Autorka je izjavila da nema konflikta interesa.

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A retrospective study by a group of authors from Germany conducted among 12,984 persons with thyroid nodules recommended screening for MTC even in case of very small thyroid nodules, regardless of their ultrasound appearance (15). Stimulation tests using pentagastrin and calcium gluconate were not identified as superior in relation to basal CTN (15). In the routine measurement of CTN in 5,817 persons with thyroid nodules, a group of researchers in Italy described basal CTN as a very sensitive test in the early diagnosis of MTC, although confirmatory pentagastrin stimulation tests were necessary in most cases (16). In a study by a group of authors in the United States of America, the cost-effectiveness of screening for MTC in persons with thyroid nodules was established (with a cost-benefit ratio which corresponds to colonoscopy and mammography screening) (17). A meta-analysis of seventeen studies by authors from Germany with a total of 74,407 participants found that both basal CTN and the combination of basal and pentagastrin-stimulated CTN have high sensitivity and specificity in detecting MTC (7). However, in persons with intermediate CTN values (basal CTN in women < 30 pg/mL, in men < 60 pg/mL), the follow-up of patients (waiting strategy) should be considered in order to avoid excessive surgical procedures (7). The calcium gluconate stimulation test is not recommended as a screening test for MTC (7). A review of 16 cohort studies (retrospective and prospective) with a total of 72,368 participants, by a group of authors form the Netherlands, did not support sufficient evidence for the implementation of screening for MTC in persons with thyroid nodules (5). As an alternative, the authors suggest the measurement of CTN in persons with the suspicious clinical picture, indeterminate findings of FNA or both (5).

The recommendations of professional associations about MTC screening are not universal (18,19). In 2006, the European Thyroid Association (ETA) recommended screening for MTC in persons with newly discovered thyroid nodules (12). The Guidelines of the American Thyroid Association (ATA), the American Association of Clinical Endocrinologists (AACE), the American College of Endocrinology (ACE) and the Italian Association of Clinical Endocrinologists (AME) are vague about the above mentioned question (18).

Conclusion

In the presented case report, discreetly elevated CTN values in the serum did not indicate the existence of MTC. Further randomized clinical trials are needed to resolve the dispute and establish the uniform guidelines for the use of CTN, as a screening test, in persons with thyroid nodules. MTC is a rare and potentially very aggressive neuroendocrine neoplasm, predominantly if the diagnosis is established at advanced stages of the disease. Therefore, it is necessary to consider all the advantages and disadvantages in order to use CTN measurements as a screening test aimed at early detecting of MTC in persons with thyroid nodules.

Competing interests

The author declared no competing interests.

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ZDRAVSTVENA NEGA PACIJENATA SA ZAPALJENSKIM BOLESTIMA CREVA

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SAŽETAK

Zapaljenske bolesti creva su hronične bolesti nepoznate etiologije sa tendencijom javljanja u mlađoj populaciji. Postoje dva tipa oboljenja – Kronova bolest i ulcerozni kolitis. Zbog svoje kompleksnosti, ove bolesti predstavljaju veliki problem današnje medicine, kako sa dijagnostičkog, tako i sa terapijskog aspekta. Inflamatorne bolesti creva negativno utiču na kvalitet života, obrazovanje, zapošljavanje i svakodnevno funkcionisanje obolelih. U ovom stručnom radu prikazani su najčešći problemi sa kojima se medicinske sestre/tehničari susreću u bolničkim uslovima tokom rada sa obolelima, kroz metod procesa zdravstvene nege (PZN), sa navedenim sestrinskim intervencijama za konkretan problem.

Ključne reči: zapaljenske bolesti creva, Kronova bolest, ulcerozni kolitis, proces zdravstvene nege

Uvod

Zapaljenske bolesti creva (engl. *Inflamatory bowel disease* – IBD) su hronične bolesti nepoznate etiologije sa tendencijom javljanja u mlađoj populaciji. Postoje dva tipa oboljenja – Kronova bolest (KB, lat. *Morbus Crohn*) i ulcerozni kolitis (UC, lat. *Colitis ulcerosa*). Osnovna razlika je u lokalizaciji, jer se Kronova bolest može javiti u bilo kom delu digestivnog trakta - „od usta do anusa“, dok ulcerozni kolitis zahvata samo sluznicu debelog creva (1).

Etiologija zapaljenskih bolesti creva i dalje nije u potpunosti razjašnjena, iako je godinama predmet brojnih istraživanja. Pretpostavka je da postoji pojačan imuni odgovor na određene antigene u organizmu obolele osobe. Nasledni faktor u kombinaciji sa faktorima sredine, kao što su pušenje i nepravilna ishrana bogata rafinisanim šećerima, doprinose nastanku bolesti. Takođe, sa ovim oboljenjima dovodi se u vezu smanjena fizička aktivnost, pretrpljeni ozbiljan psihički stres, kao i postojanje hroničnih komorbiditeta (2). Zbog svoje kompleksnosti, ove bolesti predstavljaju veliki problem današnje medicine, kako sa dijagnostičkog, tako i sa terapijskog aspekta. Karakterišu ih smene faze pogoršanja i remisije.

Epidemiološki podaci pokazuju da je incidencija Kronove bolesti 3 do 20 slučajeva godišnje na 100.000 stanovnika u Sjedinjenim Državama (3), a ulceroznog kolitisa 2 do 21 slučaj na 100.000 stanovnika (4). Prema studiji *Molodecky* i saradnika, na osnovu podataka prevalencije, u Evropi 322 osobe na 100.000 stanovnika imaju Kronovu bolest, a 505 na 100.000 stanovnika ulcerozni kolitis (5). Tačni podaci za R. Srbiju ne postoje, iako su pretpostavke da je taj broj oko 10.000 (6). Prevalencija bolesti raste sa godinama starosti, a najveća je u uzrastu 45 i više godina i među belim stanovništvom nehispanskog porekla (2).

Ukoliko se na vreme ne prepoznaju i ne tretiraju, ove bolesti mogu doprineti ireverzibilnom oštećenju digestivnog trakta ili trajnom invaliditetu. Od zapaljenskih bolesti creva češće obolevaju mlađe osobe, između 15 i 35 godina, a značajan je porast broja obolelih u pedijatrijskoj populaciji (2).

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HEALTH CARE OF PATIENTS WITH INFLAMMATORY BOWEL DISEASES

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SUMMARY

Inflammatory bowel diseases are chronic diseases of unknown etiology with a tendency to occur in the younger population. There are two types of disease - Crohn's disease and ulcerative colitis. Due to their complexity, these diseases represent a major problem of today's medicine, both from diagnostic and therapeutic aspects. Inflammatory bowel diseases negatively affect the quality of life, education, employment and daily functioning of patients. This paper presents the most common problems that nurses/technicians in hospital conditions encounter when working with patients, through the method of the health care process, with the listed nursing interventions for the specific problem.

Key words: inflammatory bowel diseases, Crohn’s disease, ulcerative colitis, nursing process

Introduction

Inflammatory bowel diseases are chronic diseases of unknown etiology with a tendency to occur in the younger population. There are two types of disease – Crohn’s disease (lat. Morbus Crohn) and ulcerative colitis (lat. Colitis ulcerosa). The main difference relates to the localization, because Crohn’s disease can appear in any part of the digestive tract – “from the mouth to the anus”, while ulcerative colitis occurs only in the mucosa of the colon (1).

The etiology of inflammatory bowel diseases has not been clarified completely, although it has been the subject of numerous studies for years. It has been assumed that increased immune response to certain antigens appears in the body of the ill person. The hereditary factor in combination with environmental factors such as smoking and improper diet rich in refined sugar contribute to the occurrence of disease. Also, insufficient physical activity and serious psychological stress are associated with these diseases, as well as the existence of chronic comorbidities (2). Due to their complexity, these diseases represent a major problem in contemporary medicine, considering both diagnostic and therapeutic aspects. They are characterized by the altering phases of exacerbation and remission.

Epidemiological data show that the incidence of Crohn’s disease is 3 to 20 cases per 100,000 inhabitants per year in the United States of America (3), while the incidence of ulcerative colitis is 2 to 21 cases per 100,000 inhabitants (4). According to the study by Molodecky and associates, based on the data on prevalence, in Europe 322 persons per 100,000 inhabitants have Crohn’s disease, while 505 persons per 100,000 have ulcerative colitis (5). There are no precise data for the Republic of Serbia, although this number is assumed to be around 10,000 (6). The prevalence of the disease increases with age, while the highest prevalence is among persons aged 45 years and older and in the white population of non-Hispanic origin (2).

Oboleli od zapaljenskih bolesti creva imaju narušen kvalitet života i svakodnevno funkcionisanje, a potrebna su im i česta bolovanja usled simptoma i znakova bolesti i hirurške intervencije. Prisustvo simptoma bolesti može otežati obrazovanje i zapošljavanje obolelih, jer neretko imaju i do 10 stolica dnevno (7). Često je prisutna socijalna izolacija obolelih, razvoj anksioznosti i depresije (8). Ipak, uz rano prepoznavanje i primenu adekvatne terapije, ove bolesti se mogu držati u remisiji godinama (7).

Neophodno je podizanje svesti javnosti o zapaljenskim bolestima creva kroz edukacije, pogotovo mladih osoba. Edukacija je neophodna u smislu prepoznavanja simptoma i značaja pravovremenog javljanja lekaru specijalisti, gastroenterologu. Britansko gastroenterološko društvo navelo je sledeće dužnosti medicinskih sestara u centrima za zapaljenske bolesti creva: neophodno je da budu veza između pacijenta i ostalih članova multidisciplinarnog tima, treba da obezbede holističku podršku bolesniku i njegovoj porodici, obuče pacijente i članove porodice za samonegu, kao i da permanentno prate stanje pacijenta telefonom (9).

U R. Srbiji postoji Udruženje obolelih od zapaljenskih bolesti creva – UKUKS, koje permanentno radi na podršci obolelima i informisanju javnosti o značaju ovih oboljenja (6). Svetski dan obolelih od zapaljenskih bolesti creva obeležava se 19. maja svake godine, različitim kampanjama, koje imaju za cilj da prošire svest društva o tegobama kroz koje oboleli prolaze, kao i da ukažu na načine ranog prepoznavanja i lečenja ovih bolesti (10).

U ovom stručnom preglednom radu prikazani su najčešći problemi sa kojima se medicinske sestre/tehničari susreću u bolničkim uslovima tokom rada sa obolelima, kroz metod procesa zdravstvene nege (PZN), sa navedenim sestrinskim intervencijama za konkretan problem.

Simptomi i znaci zapaljenske bolesti creva

Manifestacije Kronove bolesti zavise od stepena zahvaćenosti obolelog dela digestivnog trakta, a zapaljenske promene mogu zahvatiti sve slojeve zida creva. Kronova bolest najčešće počinje u predelu terminalnog ileuma, a kod oko 40% pacijenata zahvaćeno je i tanko i debelo crevo (1).

U fazi pogoršanja bolesti osnovni simptomi su: dijareja sa velikim brojem stolica tokom dana (od 1 do 10), krv ili sluz u stolici, subfebrilna temperatura i abdominalni bolovi po tipu kolika. Gubitak u telesnoj masi, malaksalost i umor se nereteko javljaju kao posledica straha od uzimanja hrane (11). Osim manifestacija na digestivnom traktu, kod ove bolesti mogu se javiti i promene na koži u vidu osipa, poremećaj vida, bol u zglobovima, oštećenja bubrega i jetre (12).

Rano prepoznavanje bolesti podrazumeva posetu lekaru specijalisti, gastroenterologu, ukoliko osoba ima dijareju koja traje duže od nekoliko nedelja koja može biti praćena pojavom krvi ili sluzi u stolici, i ne reaguje na primenu standardne terapije, kao i ako je u kratkom vremenskom periodu došlo do značajnog gubitka telesne mase (12).

Ulcerozni kolitis zahvata samo sluznicu debelog creva, a zapaljenski proces u većini slučajeva počinje od rektuma. Simptomatologija je slična kao kod Kronove bolesti, odlikuju je prolivaste stolice više puta tokom dana, nekada i preko 10. Bolesnici uočavaju prisustvo krvi ili sluzi u stolici, javljaju se tenezmi, nadutost, bolovi u abdomenu i gubitak telesne mase (2,12).

Dijagnostikovanje zapaljenske bolesti creva

Dijagnostikovanje zapaljenskih bolesti creva nekada je veoma teško, a osim dobro uzete anamneze, fizikalnog i rektalnog pregleda, značaj u dijagnostici imaju laboratorijske analize (markeri zapaljenja: C-reaktivni protein, sedimentacija eritrocita, fekalni kalprotektin – protein koji ukazuje na zapaljenje lokalizovano u crevima, fibrinogen; kompletna krvna slika, jer se u najvećem broju slučajeva uočava anemija; biohemijske analize; testovi stolice da se isključe eventualne infekcije - *Clostridium-om difficile* ili drugim infektivnim agensima (13).

Zlatni standard u postavljanju dijagnoze zapaljenske bolesti creva je kolonoskopija sa pregledom terminalnog ileuma i uzimanjem uzorka za patohistološku analizu. Nuklearna magnetna rezonanca sa kontrastom može se primeniti da se proceni zahvaćenost zida creva zapaljenskim procesom, a kompjuterizovana tomografija da se ispita prisustvo komplikacija (12).

Lečenje zapaljenske bolesti creva

Osnovni ciljevi terapije su da se smiri zapaljenski proces i postigne klinička, laboratorijska i endoskopska remisija bolesti, kao i održavanje postignute remisije. U te svrhe primenjuje se nekoliko grupa lekova koji su prikazani u Tabeli 1 (2).

If these diseases are not recognized and treated on time, they can contribute to the irreversible damage of the digestive tract or permanent disability. Inflammatory bowel diseases often affect younger people aged between 15 and 35, while there is a significant increase in the number of patients in the pediatric population (2).

Patients with inflammatory bowel diseases have impaired quality of life and daily functioning, and they often need days off due to the symptoms and signs of the disease, as well as surgical interventions. The presence of the symptoms can make education and employment difficult for those affected by the disease, because they often have up to 10 stools a day (7). Social isolation, development of anxiety and depression are common among ill persons (8). However, the early recognition and application of adequate therapy can keep these diseases in remission for years (7).

It is necessary to raise public awareness about inflammatory bowel diseases through education, especially among young people. Education is needed in terms of recognizing the symptoms and importance of timely reporting to a specialist, gastroenterologist. The British Society of Gastroenterology has stated the following duties of nurses in centers for inflammatory bowel diseases: they should necessarily be the link between patients and other members of the multidisciplinary team, holistic support should be provided to the patient and his family, as well as the training of the patient and family members for self-care, and permanent monitoring of patient's condition by telephone (9).

In the Republic of Serbia, there is an Association of patients affected by inflammatory bowel diseases (Serbian: UKUKS), which permanently works to support patients and inform the public about the importance of these diseases (6). The world inflammatory bowel diseases day takes place on 19th May each year with different campaigns, whose aim is to raise awareness of problems that patients go through, as well as to point to the ways of early recognition and treatment of these diseases (10).

In this review article, the most frequent problems encountered by nurses/technicians in hospital conditions while working with patients are presented through the method of the health care process with the specified nursing interventions for the specific problem.

Symptoms and signs of inflammatory bowel diseases

The manifestations of Crohn's disease depend on the degree of involvement of the affected part of the digestive tract, while inflammatory changes can affect all layers of the intestinal wall. Crohn's disease begins most frequently in the area of the terminal ileum, and in about 40% of patients both small and large intestines are affected (1).

In the phase of worsening of the disease, the main symptoms are the following: diarrhea with a large number of stools during the day (from 1 to 10), blood or mucus in the stool, subfebrile temperature and colicky abdominal pain. The loss of body weight, weakness and fatigue often occur as a result of fear of eating food (11). In addition to manifestations in the digestive tract, changes on skin in the form of rash, visual impairment, pain in the joints, damage to kidneys and liver can occur in this disease (12).

The early recognition of the disease implies visiting a specialist, gastroenterologist if a person has diarrhea that lasts longer than several weeks and does not react to the application of standard therapy, if it is accompanied by the occurrence of blood or mucus in the stool, as well as if there has been a significant weight loss in a short period of time (12).

Ulcerative colitis affects only the mucosa of the colon, while the inflammatory process in most cases starts from the rectum. The symptomatology is similar to Crohn's disease, it is characterized by loose stools several times a day, sometimes even more than ten. Patients notice the presence of blood or mucus in the stool, tenesmus, flatulence, pain in the abdomen and the body weight loss occur (2,12).

Diagnosing inflammatory bowel disease

Diagnosing inflammatory bowel diseases is sometimes very difficult, and apart from a well-taken anamnesis, physical and rectal examination, laboratory analyses are important in diagnostics (markers of inflammation: C-reactive protein, sedimentation of erythrocytes, fecal calprotectin – protein that indicates inflammation localized in the intestines, fibrinogen; a complete blood count, because in most cases anemia is observed; biochemical analyses; stool tests to exclude possible infections – *Clostridium difficile* or other infectious agents) (13).

Tabela 1. Lekovi u terapiji zapaljenske bolesti creva

Koritkosteroidi	Aminosalicilati	Imunomodulatori	Biološka terapija
Primenjuju se kod umerenih i teških oblika Kronove bolesti. Smanjuju zapaljenski odgovor organizma. Zbog svojih neželjenih efekata koriste se samo za indukciju remisije	Primenjuju se u lečenju blažih oblika ulceroznog kolitisa. Služe i za indukciju remisije i kao terapija održavanja blagih do umerenih oblika ulceroznog kolitisa.	Tiopurini (azatioprin) primenjuju se u terapiji održavanja i sprečavanju relapsa zapaljenskih bolesti creva. U slučaju netolerancije azatioprina, koristi se metotreksat kod pacijenata sa Kronovom bolešću.	Primenjuje se za lečenje najtežih oblika obe bolesti. Pravovremenom primenom postiže se zaceljenje sluznice creva i smanjuje broj relapsa bolesti, kao i potreba za hirurškim lečenjem.

Najteže forme bolesti koje ne reaguju na primenu lekova, ili kod kojih su prisutne komplikacije kao što su fistule, fisure, apsces i druge, moraju se tretirati hirurškim putem (11).

Zdravstvena nega obolelih od zapaljenskih bolesti creva

Oboleli od zapaljenskih bolesti creva mogu biti potpuno funkcionalni i obavljati svakodnevne aktivnosti ukoliko se bolest otkrije u ranoj fazi i primeni adekvatna terapija. Studija *Carels*-a i saradnika je došla do saznanja da 88,5% obolelih ispitanika smatra da im bolest značajno negativno utiče na kvalitet života (14). Reagovanje na bolest i terapiju je individualno, većina bolesnika može biti u dugogodišnjoj remisiji, ali ipak, kod nemalog broja pacijenata je neophodna hospitalizacija, kako bi se tretirale komplikacije. Ukoliko se iz bilo kog razloga jave komplikacije kao što su fistule, apscesi i dr, pacijent se mora lečiti u bolničkim uslovima, a u skladu sa njegovim stanjem i potrebama za zdravstvenom negom, neophodno je napraviti plan nege (9).

Proces zdravstvene nege je složena višeetapna metoda zasnovana na opštenaučnim principima i principima zdravstvene nege, koja je potpuno prilagođena individualnim potrebama korisnika za negom. Sastoji se iz pet faza koje su međusobno komplementarne i to su: utvrđivanje potreba za negom, definisanje dijagnoze nege i kolaborativnih problema, planiranje zdravstvene nege, realizacija plana nege i evaluacija (15).

Utvrđivanje potreba za zdravstvenom negom obolelih od zapaljenskih bolesti creva, pre svega, podrazumeva uzimanje sestrinske anamneze, odnosno razgovor sa bolesnikom, pri kom se prikupljaju podaci o njegovom trenutnom stanju, razlogu hospitalizacije, ranijim zdravstvenim problemima, navikama u ishrani, konzumiranju cigareta, alkohola i fizičkoj aktivnosti i dr. Prilikom razgovora sa bolesnikom posebnu pažnju bi trebalo posvetiti broju stolica na dnevnom nivou, izgledu fekalnih masa, eventualnom prisustvu krvi i sluzi u stolici, kao i pratećim simptomima (grčevi, tenezmi, nadutost). Osim razgovora sa bolesnikom,strukovna medicinska sestra vrši inspekciju opšteg stanja bolesnika, antropometrijska merenja, kontroliše vitalne parametre, primenjuje numeričku skalu za procenu bola, Morseovu skalu za procenu rizika za pad i vodi listu bilansa tečnosti. Oboleli od zapaljenskih bolesti creva često imaju gubitak telesne mase, mogu biti dehidrirani usled velikog broja stolica, te je neophodno proceniti stepen dehidratacije i voditi listu bilansa tečnosti (1,16,17).

Definisanje dijagnoze nege i kolaborativnih problema je sledeća faza procesa zdravstvene nege nakon utvrđenih potreba za zdravstvenom negom. Neke od najčešćih dijagnoza nege kod obolelih od zapaljenskih bolesti creva mogu biti: deficit znanja o osnovnoj bolesti, deficit samonege, rizik od poremećaja termoregulacije, rizik od dehidratacije, socijalna izolacija (15). Kolaborativni problemi koji prate zapaljenske bolesti creva su: dijareja (lat. *diarrhea*), povraćanje (lat. *vomitus*), pothranjenost (lat. *malnutrition*), abdominalni bol (lat. *dolor abdominalis*), povišena temperatura, anemija i depresija (16).

Tečne stolice (do 10 puta tokom dana) predstavljaju najčešći simptom koji bolesnike i dovodi kod gastroenterologa, jer kod zapaljenskih bolesti creva tečne stolice traju duže od mesec dana i dovode do poremećaja opšteg stanja organizma (17). Medicinska sestra mora uzeti detaljne podatke od bolesnika o broju stolica tokom dana, izgledu, konzistenciji, prisustvu krvi i sluzi kao i izvršiti inspekciju anogenitalne regije (16). Sestrinske intervencije koje je neophodno sprovesti kod ovog kolaborativnog problema su: praćenje i evi-

Tabela 1. Medications in the treatment of inflammatory bowel disease

Corticosteroids	Aminosalicylates	Immunomodulators	Biological therapy
They are used in moderate and severe forms of Crohn's disease. They reduce the inflammtory response of the body. Due to their side effects, they are used only for the induction of remission.	They are used for the treatment of mild forms of ulcerative colitis. They are used for the induction of remission, as well as the maintenance therapy of mild to moderate forms of ulcerative colitis.	Thiopurines (azathioprine) are used in the maintenance therapy and prevention of relapse of inflammatory bowel diseases. In case of intolerance to azathioprine, methotrexate is used in patients with Crohn's disease.	It is used for the treatment of most severe forms of both diseases. The mucosa of intestines heals with timely application and the number of relapses is reduced, as well as the need for surgical treatment.

The gold standard in diagnosing inflammatory bowel disease is colonoscopy with the examination of the terminal ileum and taking a sample for the pathohistological analysis. Contrast-enhanced nuclear magnetic resonance can be applied to assess the involvement of the small intestine wall by the inflammatory process, while computed tomography is used to examine the presence of complications (12).

Treatment of inflammatory bowel disease

The main treatment goals are to calm the inflammatory process and achieve clinical, laboratory and endoscopic remission of the disease, as well as to maintain the achieved remission. For this purpose, several groups of medications are applied, as shown in Table 1 (2).

The most severe forms of the disease, which do not respond to the use of drugs, or in which complications such as fistulas, fissures, abscess and others are present, must be treated surgically (11).

Health care of patients with inflammatory bowel disease

Patients with inflammatory bowel disease can be completely functional and perform daily activities if the disease is detected at an early stage and adequate therapy is applied. In a study by Carels and associates, it has been found that 88.5% of affected respondents believe that the disease has a significant negative impact on their quality of life (14). Reacting to the disease and therapy is individual, the majority of patients can be in long-term remission, however, a considerable number of patients need hospitalization in order to treat complications. If for any reason, complications such as fistulas, abscesses and other occur, the patient must be treated in hospital conditions, and in accordance with his condition and needs for health care, it is necessary to make a care plan (9).

The process of health care is a complex multi-stage method based on general scientific principles and principles of health care, which is completely adapted to individual needs of care users. It consists of five phases that are mutually complementary, and they are the following: determination of needs for care, definition of diagnosis of care and collaborative problems, planning of health care, realization of care plan and evaluation (15).

Determining the needs for health care in patients with inflammatory bowel diseases involves, first of all, taking the nursing anamnesis, that is, conversation with the patient, during which nurses collect data on his current condition, reason for hospitalization, previous health problems, eating habits, smoking, consumption of alcohol and physical activity, etc. During this conversation with the patient, special attention should be paid to the number of stools per day, the appearance of fecal mass, possible presence of blood and mucus in the stool, as well as accompanying symptoms (cramps, tenesmus, flatulence). In addition to talking with the patient, the nurse inspects the patient's general condition, performs anthropometric measurements, controls vital parameters, implements a numerical scale for the assessment of pain, Morse scale for the assessment of risk of falling and keeps a fluid balance chart. Patients with inflammatory bowel diseases often have the loss of body weight, they can be dehydrated due to the large number of stools, and therefore, it is necessary to assess the degree of dehydration and keep a fluid balance chart (1,16,17).

Defining the diagnosis of care and collaborative problems is the next stage in the health care process after the need for health care has been identified. Some of the most common diagnoses

dentiranje izgleda i učestalosti stolice (sa posebnim osvrtom na prisustvo krvi i sluzi); praćenje bilansa unete i izlučene tečnosti; procena rizika od dehidratacije (inspekcija sluzokože usne duplje i praćenje turgora kože); nadoknada tečnosti parenteralnim putem, prema nalogu ordinirajućeg lekara (terapija); adekvatna ishrana i medicinska nutritivna terapija uz konsultaciju nutricioniste; i redovna nega anogenitalne regije ako je pacijent nepokretan, a kod pokretnih obučavanje pacijenta za samonegu i uzakzivanje na značaj redovne nege kože (15,16).

Ciljevi i mogući ishodi sestrinskih intervencija doprinose da ne dođe do dehidratacije tokom hospitalizacije. Bolesnik će demonstrirati pravilnu negu anogenitalne regije i redovno je sprovoditi, a imače i adekvatan turgor i adekvatnu prebojenost kože i sluznica.

Bol u stomaku kod bolesnika sa zapaljenskim bolestima creva je po tipu grčeva, a ukoliko su praćeni mučninom i povraćanjem mogu ukazivati na suženje lumena creva (17). Za procenu bola medicinska sestra može koristiti numeričku ili neku drugu skalu u zavisnosti od stanja i uzrasta pacijenta. Osim procene jačine bola, neophodno je uzeti i anamnezu o bolu, pitati pacijenta o karakteristikama bola kao što su: propagacija, trajanje, faktori koji ga provociraju/olakšavaju, da li je pojava bola povezana sa uzimanje hrane i da li je do sada uzimao analgetsku terapiju. Sve podatke potrebno je dokumentovati (18). Sestrinske intervencije koje je neophodno sprovesti kod prisustva abdominalnog bola su: procena jačine bola primenom odgovarajuće skale, uzimanje anamneze o karakteristikama bola, postavljanje pacijenta u odgovarajući položaj, primena analgetske terapije po nalogu lekara, i nformisanje pacijenta o neželjenim efektima analgetika (18,19). Ciljevi i mogući ishodi sestrinskih intervencija doprineće smanjivanju bola u abdomenu i mogu potpuno prestati za 48h. Takođe, bolesnik će biti informisan o neželjenim efektima i znati pravovremeno da ih prijavi medicinskoj sestri ukoliko se jave.

Povraćanje kao izolovan simptom se retko sreće kod zapaljenskih bolesti creva, obično ono prati abdominalni bol i ukazuje na suženje crevnog lumena. Posledica povraćanja može biti dehidratacija i poremećaj opšteg stanja, te je neophodno da medicinska sestra svojim intervencijama predupredi ove komplikacije. Pomoć pacijentu koji povraća, praćenje izgleda i količine povraćenog sadržaja i dokumentovanje su dužnosti medicinske sestre (16). Sestrinske intervencije koje se sprovode kod pacijenta koji povraća su: postavljanje pacijenta u odgovarajući položaj prilikom povraćanja (sedeći ili bočni položaj kod pacijenta koji je bez svesti); higijena usne duplje nakon povraćanja; praćenje izgleda i količine povraćenog sadržaja i dokumentovanje; adekvatna hidratacija pacijenta kao prevencija dehidratacije, procena turgora kože i izgleda vidljivih sluzokoža; vođenje liste bilansa tečnosti; kontrola vitalnih parametara (15). Ciljevi i ishodi sestrinskih intervencija doprineće prestansku povraćanja za 24h, a takođe neće doći do dehidratacije i vitalni parametri pacijenta biće u granicama referentnih vrednosti.

Pothranjenost se definiše kao nedovoljan unos nutrijenata koje posledično dovodi do smanjenja telesne mase. Kod pacijenata sa zapaljenskim bolestima creva može nastati usled smanjene apsorpcije hranljivih materija usled oštećene crevne sluznice ili zbog gubitka apetita i smanjenog unosa hrane (12). Sestrinske intervencije koje se sprovode kod pacijenta sa ovim problemom su: kontrola telesne mase svakog dana, procena rizika za dehidrataciju, kontrola turgora kože i boje vidljivih sluznica, nutrirtivna terapija i konsultacija nutricioniste, izrada individualnog motivacija pacijenta da unosi manje, a češće obroke, kao i edukacija o načinu ishrane i namirnicama koje treba da izbegava (20). Ciljevi i ishodi sestrinskih intervencija doprineće da ne dođe do daljeg gubitka u telesnoj masi, pacijent će povećati telesnu masu za 10% za mesec dana, neće doći do dehidratacije i pacijent će razumeti i prihvatiti novi način ishrane (20,21).

Slabost i malaksalost su česti simptomi zapaljenskih bolesti creva, pacijenti ih opisuju kao hronični umor i nedostatak energije. Kako se ove bolesti najčešće javljaju kod mladog, radno aktivnog stanovništva, hronična slabost i malaksalost značajno umanjuju kvalitet života i utiču na otežano obavljanje svakodnevnih aktivnosti (17). Kod hospitalizovanih pacijenata sa malaksalošću trebalo bi sprovoditi prevenciju pada (20). Sestrinske intervencije koje se sprovode kod pacijenta sa slabošću/malaksalošću su: procena stepena slabosti/malaksalosti, permanentan nadzor nad pacijentom, procena rizika za pad primenom Morseove skale, prevencija povreda, izbegavanje nepotrebnog napora, osiguranje odmora i sna, kao i primena pasivnih vežbi za održavanje mišićne snage (21). Ciljevi i ishodi sestrinskih intervencija

of care in patients affected by inflammatory bowel disease may be: lack of knowledge about the underlying disease, deficit of self care, risk of thermoregulation disorders, risk of dehydration, social isolation (15). Collaborative problems that accompany inflammatory bowel diseases are: diarrhea, vomiting, malnutrition, abdominal pain, fever, anemia and depression (16).

Liquid stools (up to 10 times a day) are the most common symptom that brings patients to the gastroenterologist, because in inflammatory bowel disease, liquid stools last longer than a month and lead to disorders related to the general state of the body (17). A nurse must take detailed information from the patient about the number of stools per day, appearance, consistency, presence of blood and mucus, and inspect the anogenital region (16). Nursing interventions that should necessarily be implemented in case of this collaborative problem are: monitoring and recording the appearance and frequency of the stool (with special reference to the presence of blood and mucus); monitoring the balance of taken and excreted fluids; the estimation of the risk of dehydration (inspection of the mucous membrane of the oral cavity and monitoring of the skin turgor); parenteral compensation of fluids, as prescribed by the attending doctor (therapy); adequate diet and medical nutritional therapy with the consultation of a nutritionist; and regular care of anogenital region if the patient is immobile, and for mobile patients, the patient is trained for self-care with an emphasis placed on the importance of regular skin care (15,16).

The goals and possible outcomes of nursing interventions contribute to the prevention of dehydration during hospitalization. The proper care of the anogenital region will be demonstrated to the patient and he will carry it out regularly, so he will have the adequate skin turgor and the adequate color of skin and mucous membranes.

The abdominal pain in patients with inflammatory bowel diseases is cramp-like, and if it is accompanied by nausea and vomiting, it may indicate the narrowing of the intestinal lumen (17). In order to assess the pain, a nurse can use a numerical or other scale depending on the patient's condition and age. In addition to the assessment of the pain intensity, it is necessary to take the anamnesis of that pain, to ask the patient about the characteristics of the pain such as: propagation, duration, factors that provoke/alleviate it, whether the onset was related to the food they had taken and whether they had taken analgesic therapy to that moment. All data must be documented (18). Nursing interventions that must be performed when the abdominal pain is present are the following: assessing the pain intensity using the appropriate scale, taking anamnesis about the characteristics of the pain, placing the patient in the appropriate position, applying the analgesic therapy according to the doctor's order, and informing the patient about the side effects of analgesics (18,19). The goals and possible outcomes of nursing interventions will contribute to the alleviation of abdominal pain and it can completely stop in 48 hours. Also, the patient will be informed about side effects and he will know to report them to the nurse on time if they occur.

Vomiting as an isolated symptom is rarely encountered in inflammatory bowel diseases, it usually accompanies the abdominal pain and indicates the narrowing of the intestinal lumen. The consequence of vomiting can be dehydration and disturbance of the general condition, and therefore, the nurse should necessarily prevent these complications with her interventions. Helping the patient who is vomiting, monitoring the appearance and amount of vomited contents and keeping records are nurse's duties (16). Nursing interventions that are carried out when a patient is vomiting are the following: placing the patient in the appropriate position during vomiting (sitting or lateral position in an unconscious patient); hygiene of the oral cavity after vomiting; monitoring the appearance and amount of vomited contents and keeping records; adequate hydration of the patient as the prevention of dehydration, the assessment of skin turgor and appearance of visible mucous membranes; keeping a fluid balance chart; control of vital parameters (15). The goals and outcomes of nursing interventions will contribute to the cessation of vomiting in 24 hours, and dehydration will also not occur and the patient's vital parameters will be within reference values.

Malnutrition is defined as an insufficient intake of nutrients, which consequently leads to a decrease in body weight. In patients with inflammatory bowel diseases, it can appear due to the reduced absorption of nutrients because of the damaged intestinal mucosa or due to the loss of

preveniraće povrede/padove, a slabost/malaksalost će biti manjeg intenziteta (21).

Nedovoljna ili potpuna neinformisanost pacijenta o svojoj bolesti predstavlja ključni problem za dobro zbrinjavanje ovih pacijenata. Može se odnositi na nedovoljnu upućenost o značaju pravilne ishrane i u tom smeru je potrebno sprovoditi edukaciju pacijenta (20). Prilikom uzimanja sestrinske anamneze potrebno je proceniti znanje pacijenta o bolesti, ili roditelja, ukoliko je u pitanju dete. Potrebno je ukazati na značaj ishrane u aktivnoj fazi bolesti kada je prisutna dijareja, a kasnije se pacijentu savetuje da sam proba hranu koja mu prija, a izbegava one namirnice koje izazivaju tegobe (17). Osim toga, pacijenta je potrebno edukovati i o načinu primene terapije, u početku kada se primenjuje kortikosteroidna terapija potrebno je proceniti da li je pacijent razumeo način doziranja i primene lekova. Kada se u terapiju uključe i drugi lekovi, kao što su npr. imunomodulatori, pacijent mora redovno kontrolisati krvnu sliku kako bi se na vreme prepoznali eventualni neželjeni efekti leka (12). Sestrinske intervencije koje se odnose na ovu dijagnozu nege doprineće edukaciji pacijenta o važnosti ishrane za kontrolu bolesti, informisanju pacijenta o neželjenim efektima lekova i načinu njihovog prepoznavanja, kao i procenu razumevanja pruženih informacija od strane pacijenta (23). Ciljevi i ishodi sestrinskih intervencija omogućiće da pacijent razume osnovne informacije o svojoj bolesti, da se pridržava dijetetskog režima, kao i da zna da primeni različite grupe lekova koji su propisani od strane lekara i da nabroji njihove neželjene efekte, kao i način kako da ih na vreme prepozna (23).

Dehidratacija predstavlja gubitak vode i/ili elektrolita iz organizma izazvan različitim poremećajima, a kod pacijenata sa zapaljenskim bolestima creva je posledica velikog broja tečnih stolica i/ili povraćanja. U kliničkoj slici postoji jaka žeđ, suva koža i vidljive sluznice, jezik suv i obložen, smanjen trugor kože. U zavinosti od stepena dehidratacije može doći do poremećaja svesti (17). Sestrinske intervencije koje se sprovode u cilju sprečavanja dehidratacije su: kontrola vitalnih parametara, vođenje liste bilansa tečnosti, procena stanja i izgleda kože i vidljivih sluznica, adekvatna hidratacija bolesnika, posebno dok su prisutne tečne stolice, kao i nadoknada tečnosti parenteralnim putem po nalogu lekara (20). Ciljevi i ishodi sestrinskih intervencija sprečiće da dođe do dehidratacije, koža i vidljive sluznice biće adekvatnog izgleda, a bilans unete i izlučene tečnosti će biti pozitivan (21-23).

Pacijenti oboleli od zapaljenskih bolesti creva smatraju da njihova bolest značajno utiče na mnoge aspekte njihovog života kao što su obrazovanje, socijalizacija i zaposlenje. Velika evropska studija sprovedena u saradnji sa udruženjima pacijenata koji boluju od zapaljenskih bolesti creva otkrila je da 50% pacijenata smatra da ih bolest sprečava da imaju emotivne veze (24). Medicinske sestre mogu pružiti pacijentima informacije o udruženjima obolelih ili drugim organizacijama za podršku, a tokom hospitalizacije mogu podsticati komunikaciju sa drugim pacijentima ili uključiti druge stručnjake sa ciljem pružanja podrške pacijentu (9). Sestrinske intervencije koje se sprovode u cilju smanjenja socijalne izolacije pacijenta su: ohrabrivanje pacijenta za održavanje socijalnih kontakata, upoznavanje sa drugim hospitalizovanim pacijentima i razmena iskustava – prikaz pozitivnih primera iz prakse, informisanje pacijenta o organizacijama za podršku i udruženjima obolelih, uključivanje drugih stručnjaka (psihologa) sa ciljem podrške pacijentu za prihvatanje i suočavanje sa osnovnom bolešću (9). Ciljevi i ishodi sestrinskih intervencija preveniraće da dođe do socijalne izolacije pacijenta i da pacijent komunicira sa drugim hospitalizovanim pacijentima(9).

Zaključak

Medicinska sestra je važan član multidisciplinarnog zdravstvenog tima koji učestvuje u zbrinjavanju pacijenata za zapaljenskim bolestima creva, kako sa stanovišta kliničkog zbrinjavanja, tako i za pružanje kontinuirane psihološke podrške pacijentima. Osim toga ima i organizacione dužnosti, jer se ovi pacijenti kontinuirano prate, i kada nisu hospitalizovani.

Primenom procesa zdravstvene nege postiže se holistički pristup pacijentima sa ovim komplikovanim bolestima. Strukovna/diplomirana medicinska sestra mora kontinuirano sprovoditi zdravstveno-vaspitni rad sa pacijentima, edukaciju o značaju pravilne ishrane i adekvatnoj primeni terapije, kao i pravovremenom prepoznavanju znakova relapsa bolesti i javljanja lekaru.

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

appetite and reduced intake of food (12). Nursing interventions that are performed in patients with this problem are: control of body weight every day, assessment of risk of dehydration, control of skin turgor and visible mucosa, nutritive therapy and consultations with a nutritionist, the creation of an individual diet plan, monitoring the amount of food intake, motivating the patient to take smaller and more frequent meals, as well as education about diet and foods to avoid (20). The goals and outcomes of nursing interventions will contribute to prevent further body weight loss, the patient's body weight will increase by 10% in a month, dehydration will not occur and the patient will understand and accept the new diet (20,21).

Weakness and malaise are common symptoms of inflammatory bowel diseases, which patients describe as chronic fatigue and lack of energy. Since these diseases most often occur in the young, employed population, chronic weakness and malaise significantly reduce the quality of life and influence the performance of daily activities (17). In hospitalized patients who experience weakness, the prevention of fall should be implemented (20). Nursing interventions that are performed in patients with weakness/malaise are: the assessment of the degree of weakness/malaise, permanent monitoring of the patient, the assessment of fall risk factor using Morse scale, the prevention of injuries, avoiding the unnecessary exertion, ensuring rest and sleep, as well as the application of passive exercises for the maintenance of muscle strength (21). The goals and outcomes of nursing interventions will prevent injuries/falls, while weakness/malaise will be less intense (21).

Insufficient or complete lack of information about the patient's illness is a key problem for good care of these patients. It can relate to the insufficient awareness of the importance of proper nutrition and therefore, it is necessary to educate the patient in that direction (20). When taking the nursing anamnesis, it is necessary to assess the patient's knowledge about the disease or parents' knowledge if the patient is a child. It is necessary to point out the importance of nutrition in the active phase of the disease when diarrhea is present, and later the patient is advised to try the food he likes and avoid those groceries which cause problems (17). In addition, the patient needs to be educated how therapy is administered, in the beginning when corticosteroid therapy is administered, it is necessary to assess whether the patient understood how drugs are dosed and administered. When other drugs are included in the therapy, such as, for example immunomodulators, the patient must regularly check the blood count in order to recognize side effects of the drug on time (12). Nursing interventions related to this diagnosis of care will contribute to the education of the patient about the importance of nutrition for disease control, informing the patient about side effects of drugs and how to recognize them, as well as assessing the patient's understanding of the information provided (23). The goals and outcomes of nursing interventions will enable the patient to understand the basic information about his disease, to adhere to the dietary regime, as well as to know how to administer different groups of drugs prescribed by the doctor, to list their side effects and how to recognize them on time (23).

Dehydration is the loss of water and/or electrolytes from the body caused by different disorders, while in patients with inflammatory bowel disease, it is the consequence of a large number of loose stools and/or vomiting. The clinical picture is characterized by strong thirst, dry skin and dry visible mucous membranes, dry and coated tongue, reduced skin turgor. Depending on the degree of dehydration, a disturbance of consciousness can occur (17). Nursing interventions that are performed in order to prevent dehydration are: control of vital parameters, keeping a fluid balance chart, the assessment of the condition and appearance of skin and visible mucous membranes, adequate hydration of patients, especially when he has loose stools, as well as the parenteral compensation of fluids as ordered by the doctor (20). The goals and outcomes of nursing interventions will prevent dehydration, the skin and visible mucous membranes will have the adequate appearance, while the balance of taken and excreted fluids will be positive (21-23).

Patients affected by inflammatory bowel diseases think that their disease significantly influences many aspects of their lives such as education, socialization and employment. A large European study conducted in cooperation with associations of patients suffering from inflammatory bowel diseases revealed that 50% of patients believed that the disease prevented

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them from having emotional relationships (24). Nurses can provide patients with information about patient associations or other organizations offering support, and during hospitalization they can encourage communication with other patients or involve other professionals in order to provide support to the patient (9). Nursing interventions that are performed in order to reduce the patient's social isolation are the following: encouraging the patient to maintain social contacts, getting to know other hospitalized patients and sharing experiences – presentation of positive examples from practice, informing the patient about organizations that provide support and patients' associations, involving other experts (psychologists) with the aim of supporting the patient to accept and cope with the underlying disease (9). The goals and outcomes of nursing interventions will prevent the patient's social isolation and contribute to his communication with other hospitalized patients (9).

Conclusion

A nurse is an important member of the multidisciplinary health team, who participates in the care of patients with inflammatory bowel diseases, both in terms of the clinical care and continuous psychological support provided to patients. In addition, nurses have organizational duties because these patients are continuously monitored, even when they are not hospitalized.

With the implementation of the healthcare process, a holistic approach to patients with these complicated diseases is achieved. A professional/graduate nurse must continuously carry out health-educational work with patients, education about the importance of proper diet and adequate administration of therapy, as well as timely recognition of signs of disease relapse and reporting to the doctor.

Competing interests

The authors declared no competing interests.

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FAKTORI ZA NASTANAK DRUMSKOG SAOBRAĆAJNOG TRAUMATIZMA I BOLJEG ZBRINJAVANJA POVREĐENIH LICA

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SAŽETAK

U ovom radu biće predstavljene informacije iz relevantnih izvora podataka o saobraćajnom traumatizmu, faktorima rizika i značaju hitnog zbrinjavanja povređenih. Prema procenama Svetske zdravstvene organizacije (SZO), za 2021. godinu, godišnje u saobraćajnim nezgodama smrtno strada oko 1,19 miliona ljudi, odnosno desi se globalno 15 smrtnih ishoda usled saobraćajnih nesreća na 100.000 stanovnika. Vodeći je uzrok umiranja dece uzrasta 5-29 godina i 12 vodeći uzrok smrti kada se posmatraju svi uzrasti. Efikasno zbrinjavanje traume je prioritet u svim sistemima zdravstvene zaštite. S obzirom na veliku učestalost javljanja i smrtnost od traume, potrebno je sagledati sve potencijalne faktore rizika koji utiču na ishod lečenja povređenih. Faktori kao što su dostupnost adekvatne zdravstvene zaštite, vreme reakcije hitne medicinske službe, iskustvo i organizacija trauma tima, udaljenost hospitalne zdravstvene ustanove i njena opremljenost i stručna osposobljenost za adekvatno zbrinjavanje teško povređenih, direktno utiču na kvalitet i ishod lečenja povređenih lica i povećavaju šansu za preživljavanje. Ovaj rad pruža temeljno sagledavanje problema saobraćajnih nezgoda i ističe ključne aspekte koji utiču na kvalitet zdravstvene zaštite povređenih, istovremeno ukazujući na važnost adekvatne reakcije i organizacije zdravstvenih sistema, kako bi se poboljšali ishodi lečenja i smanjila smrtnost u saobraćajnim nezgodama.

Ključne reči: Saobraćajni traumatizam, faktori rizika, registar traume, prevencija

Uvod

Prema procenama Svetske zdravstvene organizacije (SZO), za 2021. godinu, godišnje u saobraćajnim nezgodama smrtno strada oko 1,19 miliona ljudi, odnosno desi se globalno 15 smrtnih ishoda usled saobraćajnih nesreća na 100.000 stanovnika (1-3). Vodeći je uzrok umiranja dece uzrasta 5-29 godina i 12 vodeći uzrok smrti kada se posmatraju svi uzrasti (2). Tri puta češće stradaju muškarci nego žene (1,2). *Ameratunga* i saradnici predviđaju da će porast broja vozila po stanovniku rezultirati povećanjem broja povređenih i smrtno stradalih u saobraćaju za 80%, kao i da će se troškovi lečenja zbog saobraćajnih nesreća povećati za 1,0% bruto nacionalnog dohotka u zemljama sa niskim prihodima, 1,5% u zemljama sa srednjim prihodima, a za 2,0% u zemljama sa visokim prihodima (4). Međutim, prema podacima SZO za 2023. godinu, došlo je opadanja broja smrtnih ishoda usled saobraćajnog traumatizma za 5% od 2010. godine, kada je broj smrtnih ishoda usled saobraćajnog traumatizma iznosio 1,25 miliona (2). Ovo neznatno smanjenje je zabeleženo uprkos globalnom porastu broja stanovnika, broja motornih vozila i značajnom proširenju mreže puteva. U zemljama sa niskim i srednjim prihodima stopa mortaliteta je veća, a posebno za povrede glave i za populaciju mlađe životne dobi (2). Čak 92% svih smtnih ishoda usled saobraćajnog traumatizma desi se u zem-

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FACTORS FOR THE OCCURRENCE OF ROAD TRAFFIC INJURIES AND BETTER CARE OF INJURED PERSONS

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SUMMARY

This paper will present information from relevant data sources on road traffic injuries, risk factors, and the importance of emergency care of the injured. According to the estimates from the World Health Organization (WHO), approximately 1.19 million people die in road traffic accidents each year, while the number of deaths due to road traffic accidents is 15 per 100,000 inhabitants. It is the leading cause of death for children aged 5 to 29 years and the 12th leading cause of death when all ages are observed. Efficient trauma care is a priority in all health care systems. Given the high mortality and incidence of trauma, it is necessary to consider all potential risk factors that affect the outcome of treating the injured. Factors such as the availability of adequate healthcare, emergency medical service response time, trauma team experience and organization, distance to hospital facilities, and their equipment and expertise for adequate care of severely injured patients directly influence the quality and outcome of patient care and increase the chances of survival. This paper provides a thorough examination of the issues surrounding road traffic accidents and highlights key aspects that affect the quality of healthcare of the injured, while also emphasizing the importance of an appropriate response and organization of healthcare systems to improve treatment outcomes and reduce the mortality rate in traffic accidents.

Keywords: traffic trauma, risk factors, trauma registry, prevention

Introduction

According to the estimates of the World Health Organization (WHO) for the year 2021, approximately 1.19 million people die each year as a result of road traffic crashes, while the number of deaths caused by road traffic injuries is 15 per 100,000 inhabitants globally (1-3). Road traffic injuries are the leading cause of death for children and young adults aged 5 to 29 years and the 12th leading cause of death when all ages are observed (2). Males are three times more likely to be killed in road crashes than females (1,2). Ameratunga and associates predict that the upsurge in the number of vehicles per inhabitant will result in an anticipated 80% increase in the number of road traffic injuries and deaths, and that the cost of treatment due to road traffic crashes will increase by 1.0% of gross national product in low-income countries, 1.5% in middle-income countries, and by 2.0% in high-income countries (4). However, according to the WHO data for the year 2023, there has been a decrease in the number of deaths due to road traffic injuries by 5% since 2010, when the number of deaths due to road traffic injuries was 1.25 million (2). The slight decrease was recorded despite the global population growth, the increase in the number of motor vehicles and the significant expansion of road networks. In low- and middle-income countries, the mortality

ljama sa niskim i srednjim prihodima (2). Procene su da je najveći broj svih smrtnih ishoda usled saobraćajnog traumatizma u jugoistočnoj Aziji (28%), na Zapadnom Pacifiku (25%), a zatim u u afričkom regionu (19%), 12% u regionu Amerika (12%), u istočnom Mediteranu (11%) i u Evropskom regionu (5%).

Rizik od saobraćajnog traumatizma se smanjuje primenom intervencija kao što su poboljšanje putne infrastrukture, smanjenje nebezbednog ponašanja, jače zakonodavstvo i sprovođenje zakona o drumskom saobraćaju, stroža primena standarda za bezbednost vozila i kvalitetnije prehospitalno zbrinjavanje i bolničko lečenje. Loša dostupnost specijalizovanh bolnica, edukovanog kadra, helikopterskog prevoza i/ili savremeno opremljenih hirurških centara je prisutna u društvima sa niskim prihodima i u zemljama u kojima je socijalna nejednakost, kao i zemljama osiromašenim ratom i sa zastarelom saobraćajnom infrastrukturom (2). Stoga postoji hitna potreba za razvojem dobrog modela zbrinjavanja lica sa traumama, kao i uspostavljanje kvalitetnog sistema nadzora nad traumama, što bi doprinelo identifikovanju faktora koji su ključni za što bolje zbrinavanje povređenih lica, i omogućilo redukciju smrtnih ishoda.

Cilj ovog rada jeda analizira faktore koji doprinose nastanku saobraćajnog traumatizma i boljem zbrinjavanju povređenih lica, a sve u cilju uspostavljanja kvalitetnog sistema nadzora nad traumama i smanjivanja broja umrlih usled trauma.

Metode

U okviru ovog preglednog rada korišćena je literatura na engleskom jeziku, koja je dobijena pretraživanjem sledećih baza podataka: PubMed, MEDLAJN i SCOPUS. Ključne reči koje su korišćene su: faktori rizika, mortalitet, saobraćajni traumatizam i povrede u saobraćaju. Pretraživanje ovih baza podataka je obuhvatilo period za poslednjih dvadeset godina.

Faktori rizika za nastanak saobraćajnog traumatizma

U brojnim do sada sprovedenim studijama govori se o faktorima rizika za nastanak saobraćajnog traumatizma, a sve u cilju identifikovanja najboljih preventivnih mera za sprečavanje nastanka saobraćajnog traumatizma (5-7). Većina autora ističe da su tri ključna faktora za nastanak saobraćajnog traumatizma: ljudi, vozila i uslovi na putevima (5).

Glavni faktori rizika za nastanak povreda u saobraćaju su: neprilagođena i nepropisna brzina kretanja vozila u saobraćaju, loša putna infrastruktura, izbegavanje upotrebe sigurnosnih pojaseva, vožnja nakon upotrebe alkohola i/ili drugih psihoaktivnih supstanci, umor vozača, nekorišćenje ili pogrešno korišćenje auto-sedišta za decu, nenošenje kacige kod motociklista, nenošenje zaštitne opreme kod biciklista, upotreba mobilnih uređaja tokom vožnje i neadekvatno održavana vozila (6).

Neprilagođena i nepropisna brzina kretanja vozila u saobraćaju

Brzina kretanja vozila u saobraćaju je identifikovana kao ključni faktor rizika koji utiče na nastanak saobraćajnih nesreća. Odgovorna je za jednu trećinu svih saobraćajnih nesreća, kao i za više od 50% smrtnih ishoda u saobraćajnim nesrećama u svetu (6). Prekomerna brzina kretanja vozila je posebno opasna na autoputevima i slabo osvetljenim deonicama. Prema podacima SZO, rizik od sudara, kao i od teške povrede, direktno raste sa povećanjem prosečne brzine kretanja vozila (1). Ako dolazi do porasta srednje brzine kretanja vozila za 1% onda se povećava rizik od sudara za 3% i od teške povrede za 4%. Rizik od smrtnog ishoda kod pešaka udarenog prednjim delom vozila raste 4,5 puta sa porastom brzine kretanja automobila sa 50 km na sat na 65 km na sat, a u bočnim sudarima rizik od smrti putnika u vozilu iznosi 85% pri brzini vožnje od 65 km na sat.

Prema poslednjem globalnom izveštaju o stanju sigurnosti na putevima (iz 2018. godine), SZO navodi da je prekoračenje brzine jedan od glavnih uzroka trauma i umiranja od saobraćajnog traumatizma u svetu (7). S druge strane, povećanje maksimalno dozvoljene brzine kretanja vozila ima direktnu korelaciju sa brojem saobraćajnih nesreća (8). Podaci SZO, takođe, pokazuju da ograničena brzina kretanja vozila efikasno smanjuje broj umrlih u saobraćajnim nesrećama u Švajcarskoj, Holandiji, Švedskoj i Sjedinjenim Američkim Državama (SAD). Francuska i Nemačka su smanjile broj umrlih u saobraćajnim nezgodama za 9% do 39% nakon nacionalnih strategija koje su se odnosile na zakonske regulative za smanjenje ograničenja brzine kretanja vozila na putu (9-11). U razvijenim zemljama uloženi su značajni napori i novčana sredstva u edukaciju i obuku vozača, koji se odnose

rate is higher, especially for head injuries and in the younger population (2). As much as 92% of the world fatalities on the roads occur in low- and middle-income countries (2). It has been estimated that the highest number of deaths due to road traffic injuries is in Southeast Asia (28%), in the Western Pacific (25%), then in the African region (19%), in the Americas region (12%), in the East Mediterranean (11%), and in the European region (5%).

The risk of road traffic injuries is reduced by the implementation of interventions such as the improvement of road infrastructure, reduction of unsafe behavior, stronger legislation and implementation of laws on road traffic, stricter implementation of vehicle safety standards, and better pre-hospital care and hospital treatment. Limited access to specialized hospitals, educated personnel, helicopter transport and/or modern surgical centers is present in low-income societies and in countries with social inequality, as well as in countries impoverished by war and with outdated transport infrastructure (2). Therefore, there is an urgent need for the development of a good model of caring for persons with injuries, as well as the establishment of a quality surveillance system, which would contribute to the identification of factors that are essential for the best possible care of injured persons, and enable the reduction of fatal outcomes.

The aim of this study is to analyze the factors that contribute to the occurrence of road traffic injuries and better care of injured persons, with the aim of establishing good quality road traffic injuries surveillance system and reducing the number of deaths due to injuries.

Methods

Within this review article, literature in the English language was used, and it was obtained by searching the following databases: PubMed, Medline and Scopus. Key words were the following: risk factors, mortality, road traffic trauma, and road traffic injuries. The search of these databases covered the last twenty years.

Risk factors for the occurrence of road traffic injuries

Numerous studies, which have been conducted so far, consider the risk factors for the occurrence of road traffic injuries, aimed at identifying the best preventive measures to prevent the occurrence of road traffic injuries (5-7). The majority of authors emphasize that there are three key factors for the occurrence of road traffic injuries: people, vehicles and road conditions (5). The main risk factors for road traffic injuries are the following: inappropriate and excessive speed of motor vehicles, unsafe road infrastructure, failing to wear seat belts, driving under the influence of alcohol and/or other psychoactive substances, driver fatigue, non-use or incorrect use of child restraints, non-use of motorcycle helmets, non-use of protective equipment among cyclists, use of mobile devices while driving and inadequately maintained vehicles (6).

Inappropriate and excessive speed of motor vehicles

The speed of motor vehicles has been identified as a key risk factor that affects the occurrence of road traffic injuries. It is responsible for one third of all traffic accidents, as well as for more than 50% of deaths caused by road traffic accidents in the world (6). Excessive vehicle speed is especially dangerous on highways and poorly lit sections. According to the WHO data, an increase in average speed is directly related to the likelihood of a crash. Every 1% increase in mean speed produces a 3% increase in the crash risk and a 4% increase in the fatal crash risk. The risk of death for pedestrians hit by car fronts rises 4.5 times when speed increases from 50 km/h to 65 km/h, while in car-to-car side collisions the fatality risk for car occupants is 85% at 65 km/h.

According to the latest global report on the state of road safety (from 2018), the WHO states that speeding is one of the main causes of injuries and death caused by road traffic injuries in the world (7). On the other hand, the increase in the maximum permitted speed is directly related to the number of traffic accidents (8). The WHO data also show that limited speed effectively reduces the number of deaths in traffic accidents in Switzerland, the Netherlands, Sweden and in the United States of America (USA). France and Germany have reduced the number of road traffic deaths by 9% to 39% after national strategies related to legal regulations that reduced the speed limit of motor vehicles (9-11). In developed

na sprovođenje pravila i zakonskih regulativa u vezi vožnje, posebno ograničenja brzine vožnje, te podsticanje vozača da usvoje odgovarajuće merebezbednosti (7).

Izbegavanje upotrebe sigurnosnih pojaseva od strane vozača putničkih vozila i kaciga kod lica koja upravljaju motorima i biciklima

Mnoge studije ukazuju da je zbog manje upotrebe sigurnosnog pojasa i nošenja kacige trauma glave dominantna povreda kod saobraćajnog traumatizma (12,13). Tako se danas govori o „tihoj epidemiji"povreda glave (14,15). Rezultati mnogih studija ukazuju na značaj korišćenja sigurnosnih pojaseva prilikom vožnje putničkih vozila, zatim kacige kod motociklista i biciklista (14,15). Pravilna upotreba kacige, prema podacima SZO, može redukovati rizik od smrtnog ishoda u sudaru više od 6 puta, a primena sigurnosnog pojasa do 50%, a korišćenje dečijeg sedišta smrt odojčadi do 71% (1). Takođe, nošenjem kaciga može se redukovati rizik od povrede mozga do 74%.

Vožnja nakon upotrebe alkohola i drugih psihoaktivnih supstanci

Kao jedan od glavnih uzroka saobraćajnih nesreća i preuranjenih smrti navodi se korišćenje alkohola i drugih psihoaktivnih supstanci (5). Studije sprovedene u Finskoj, Meksiku i Južnoj Africi, su potvrdile da vožnja pod dejstvom alkohola narušava pažnju i kognitivne sposobnosti (16-18). Prema *Sauber-Schatz* i autorima, rezultati istraživanja iz zemalja sa visokim prihodima ukazuju da je vožnja pod dejstvom alkohola često povezana sa brzom vožnjom i nekorišćenjem sigurnosnih pojaseva i kaciga (19). Prema podacima SZO, čak i vožnja pod uticajem niske koncentracije alkohola u krvi doprinosi većem riziku od saobraćajne nesreće, a rizik značajno raste kada je koncentracija alkohola u krvi vozača ≥ 0,04 g/dl (1). Vozači koje koriste amfetamin imaju oko 5 puta veći rizik od saobraćajne nesreće nego lica koja ne koriste psihoaktivne supstance (1).

Drugi faktori za nastanak saobraćajnog traumatizma

Danas se često kao uzrok saobraćajnog traumatizma navodi korišćenje mobilnih telefona tokom vožnje (pričanje na telefon ili slanje poruka), što dovodi do usporavanja reagovanja vozača tokom vožnje (npr. na saobraćajne signale, kočenje itd.) i otežava vožnju (otežava pravilno zadržavanje vozila u traci, pravilno održavanje odstojanja od drugog vozila, itd.) (1). Smatra se da osoba koja koristi telefon ima četiri puta veći rizik da doživi saobraćajnu nesreću nego lice koje ne koristi telefon tokom vožnje (1). Približno sličan rizik daje *hands-free* korišćenje telefona.

Akcenat se danas posebno stavlja na dobro dizajniranje puteva (npr. postojanje pešačke staze, biciklističke staze, više voznih traka, itd.), jer putevi treba da obezbede što veću bezbednost za sve učesnike u saobraćaju (1). Takođe, u cilju što veće bezbednosti očekuje se proizvodnja što bezbednijih vozila prilikom sudara, što može da spasi mnoge živote. To znači da proizvođači vozila treba da obezbede vazdušne jastuke, sigurnosne pojaseve, stabilnost vozila itd. Nadekvatno sprovođenje zakona o saobraćaju (npr. vožnja u alkoholisanom stanju, nevezivanje sigurnosnih pojaseva, nepoštovanje ograničenja brzine, nenošenjekacige itd.) vode daljem porastu, a ne smanjivanju, smrtnih slučajeva i povreda u saobraćaju.

Značaj hitnog zbrinjavanja povređenih lica

Brojni faktori mogu uticati na zdravstvene posledice povređenih, uključujući mehanizam povrede, težinu povrede, način transporta i vreme transporta (od mesta povrede do najbliže zdravstvene ustanove u kojoj se povređeni može zbrinuti) (20,21). Važno je naglasiti da svako povređeno lice treba da dobije prehospitalnu negu i da bude prevezeno u najbližu bolnicu koja može da pruži sve neophodne medicinske intervencije i negu povređenom licu. Za najbolje ishode, povređena lica treba prevesti do najbliže ustanove mestu nesreće, jer samo brzom reakcijom i adekvatnim medicinskim tretmanom može se izbeći smrt i sprečiti komplikacije (22,23).

Neposredne i rane smrti čine gotovo 80% smrtnih slučajeva kod traume i obično se javljaju u prvih nekoliko sati od povrede, kao rezultat traumatske povrede mozga ili većeg iskrvavljenja. Otprilike 50% smrtonosnih povreda uzrokuje trenutnu smrt, 30% smrt u roku od 48 sati od nastale povrede, a 20% smrt tokom narednih nekoliko dana ili nedelja. Kasni smrtni ishodi, ishodi u roku od nekoliko dana ili nedelja od početne povrede,

countries, significant efforts and resources have been invested in the education and training of drivers, which relate to the implementation of rules and legal regulations regarding driving, especially speed limits, and encouraging drivers to adopt appropriate safety measures (7).

Failing to use seat belts and motorcycle and bicycle helmets

Numerous studies indicate that head trauma is a dominant injury in road traffic injuries due to limited use of seat belts and helmets (12,13). Therefore, nowadays people talk about the "silent epidemic" of head injuries (14,15). The results of many studies indicate the importance of use of seat belts while driving, as well as the use of helmets in motorcyclists and cyclists (14,15). The correct use of a helmet, according to the WHO data, can reduce the risk of death in a crash by more than 6 times, while wearing a seat belt can reduce the risk of death by up to 50%, and the use of child restraints by up to 71%. (1). Also, correct helmet use can reduce the risk of brain injury by up to 74%.

Driving under the influence of alcohol and other psychoactive substances

The use of alcohol and other psychoactive substances is one of the main causes of road traffic accidents and premature deaths (5). Studies conducted in Finland, Mexico and South Africa have confirmed that driving under the influence of alcohol impairs attention and cognitive abilities (16-18). According to Sauber-Schatz and associates, research results from high-income countries indicate that driving under the influence of alcohol is often associated with speeding and non-use of seat belts and helmets (19). According to the WHO data, in the case of drink-driving, even low levels of blood alcohol concentration contribute to the risk of a road traffic crash, while this risk increases significantly when the driver's blood alcohol concentration is > 0.04 g/dl (1). The risk of a crash among drivers who have used amphetamines is about 5 times the risk of someone who has not (1).

Other risk factors for the occurrence of road traffic injuries

Nowadays, using a mobile phone while driving (talking on the phone or sending messages) is often stated to be the cause of road traffic injuries, which slows down driver's reaction while driving (e.g. reaction to traffic signals, braking reaction time) and makes it difficult to drive (to keep in the correct lane, and to keep the correct following distances, etc.) (1). It is believed that drivers using mobile phones are 4 times more likely to be involved in a crash than drivers not using a mobile phone (1). Hands-free phones pose the similar risk.

A special emphasis is nowadays placed on the design of roads (e.g. footpaths, cycling lanes, several driving lanes) because roads should be designed to provide the safety of all road users (1). Also, the production of safe vehicles is expected to ensure the safety in case of road traffic injuries, which could potentially save many lives. This means that vehicle manufacturers should ensure air bags, seat belts, vehicle stability etc. The inadequate enforcement of traffic laws (driving under the influence of alcohol, failing to wear seat belts, not respecting speed limits, failing to use a helmet etc.) leads to a further increase, and not a reduction in road traffic injuries and deaths.

The importance of providing emergency care for injured persons

Numerous factors can influence the health repercussions in injured persons, including the mechanism of injury, the severity of injury, the mode and time of transport (from the place of injury to the nearest health facility where the injured can receive care) (20,21). It is important to emphasize that each injured person should receive pre-hospital care and be transported to the nearest hospital that can provide all necessary medical interventions and care for the injured. For the best outcomes, injured persons should be transported to the nearest trauma center, because only a quick reaction and adequate medical treatment can prevent death and complications (22,23).

Immediate and early deaths account for nearly 80% of deaths caused by trauma and they usually occur within the first few hours of injury, as a result of brain injury or major bleeding. Approximately 50% of fatal injuries cause immediate death, 30% cause death within 48 hours of the injury, and 20% cause death within the next few days or weeks. Late fatal outcomes within a few days or weeks of the initial injury are usually secondary, due to multiorgan failure or sepsis (24).

su obično sekundarni, zbog multiorganske insuficijencije ili sepse (24).

Profesor i vizionar *Richard Cowley* uveo je izraz „zlatni sat", jer je tokom svog angažovanja u Baltimoru, SAD, i američkoj vojsci tokom Drugog svetskog rata, zaključio da se velika većina smrtnih ishoda dešava u prvih 60 minuta nakon ranjavanja i povređivanja (25).

„Zlatni sat" uključuje maksimalno vreme zbrinjavanja i transporta bolesnika radi boljeg ishoda i preživljavanja. Prvih sat vremena nakon povređivanja, tj. „zlatni sat", podrazumeva period gde se unesrećeni zbrinjava, u tom periodu se dijagnostikuje težina traume, procenjuje mogući ishod i primenjuju se mere za održavanje života i mere definitivnog zbrinjavanja (24,26).

Zbog visoke učestalosti javljanja trauma i mortaliteta, medicinski radnici moraju usvojiti principe organizovanog pristupa u početnom zbrinjavanju i lečenju pacijenata (27). Efikasno zbrinjavanje traume je prioritet u svim sistemima zdravstvene zaštite. U cilju što efikasnijeg zbrinjavanja povređenih, neophodno je sagledati sve potencijalne faktore koji utiču na ishod lečenja povređenih (28-30). Hitan prehospitalni tretman povređenih je od esencijalnog značaja za konačni ishod lečenja, budući da postoji niz vremenski osetljivih radnji koje su neophodne za postizanje pune efikasnosti zbrinjavanja povređenih (3).

Koncepcija savremene urgentne medicine nalaže da se zbrinjavanje povreda započne što pre na mestu povređivanja, prema jedinstvenoj dijagnostičko-terapijskoj doktrini. Na taj način se postiže da svi povređeni dobiju podjednako kvalitetnu zdravstvenu zaštitu i negu, preveniraju se nepotrebni smrtni ishodi i invaliditet nakon traume, a istovremeno štede sredstva i resursi u okviru zdravstvenog sistema (3). Jačanje sistema hitne medicinske pomoći, koji služe kao prva tačka kontakta, od suštinskog je značaja za obezbeđivanje pravovremenog i pravičnog pristupa nezi povređenih (31). Nedavno objavljena metaanaliza, koja je obuhvatila rezultate osam studija iz šest zemalja sa niskim i srednjim prihodima, o uticaju prehospitalne nege na ishod lečenja povređenih lica, pokazala je da primena adekvatne prehospitalne nege može smanjiti rizik od umiranja kod povređenihlica za čak 25% (32). Osim toga, u većini studija, navodi se da su hitno reagovanjei blizina prve zdravstvene ustanove od mesta nesreće značajni za bolje preživljavanje povređenih lica u saobraćajnim nesrećama (33-37).

Registar traume

U cilju unapređenja preživljavanja lica posle saobraćajnog traumatizma, neophodno je uspostaviti registar trauma. Registar trauma se odnosi na sistematsko prijavljivanje svakog povređenog lica i prikupljanje podataka za svakog od njih. U ovaj registar unose se podaci o pacijentu (starost, pol, etnička pripadnost, prethodne zdravstvene informacije itd.), povredi (vrsta povrede, mehanizam povrede - saobraćajna nesreća, pad, nasilje, mesto povrede itd.), lečenju (prehospitalna nega, intervencije u urgentnom centru, hirurški zahvati, dužina hospitalizacije, komplikacije itd.) i ishodu (letalni ishod, stepen invaliditeta, izlečenje itd.) (38). Ovaj registar služi kao važan alat za medicinske stručnjake, istraživače i kreatore zdravstvenih politika u cilju praćenja i analize podataka, unapređenja kvaliteta zdravstvene zaštite i kreiranja zdravstvenih politika sa akcentom na prevenciji (38). Registri traume imaju i važnu ulogu u identifikaciji faktora koji su uzrok nastanka povreda, što doprinosi donošenju i sprovođenju raznovrsnih stručnih i edukativnih programa koji teže prevenciji i sprečavanju nastanka traume (38). Značaj ovih registara je posebno važan u zemljama sa niskim i srednjim prihodima, u kojima je opterećenje povredama i dalje veliki izazov, zbog nepreduzimanja preventivnih intervencija (39). Zahvaljujući registru traume moguće je identifikovati neke od faktora rizika, na koje možemo uticati i delovati preventivno (unapređenje kvaliteta puteva, edukacija vozača i pešaka o saobraćajnim pravilima, saobraćajna kontrola, kontrola ispravnosti motornih vozila i drugo) (40). Dosadašnja iskustva govore da postoje određene barijere za implementaciju i korišćenje podataka iz registra traume, a to su loš kvalitet podataka, nedostatak informacionih tehnologija, adekvatne putne infrastrukture, finansiranja od strane fondova, kao i nedostatak edukovanog i stručnog kadra, i administrativne poteškoće, što može registre traume u određenoj meri činiti neefikasnim (40). U poslednje tri decenije zbog uvođenja registara traume, evidentno je poboljšanje saobraćajne infrastrukture, edukacije učesnika u saobraćaju i povećanje broja preventivnih kampanja, što je doprinelo značajnom smanjenju umrlih u saobraćajnim

Professor and visionary Richard Cowley introduced the term "golden hour", because during his engagement in Baltimore, the USA, and in the US Army during the Second World War, he concluded that the vast majority of deaths occurred in the first 60 minutes after being wounded or injured (25). The "golden hour" includes the maximum time of patient care and transport for better outcome and survival. The first hour after the injury, that is, the "golden hour" is the period when care is provided for an injured person, during which the severity of the injury is diagnosed, the possible outcome is assessed, while life support and definitive care measures are implemented (24,26).

Due to the high incidence of injuries and mortality, medical professionals must adopt the principles of an organized approach in the initial care and treatment of patients (27). Effective trauma care is a priority in all health care systems. In order to treat the injured as efficiently as possible, it is necessary to consider all potential factors that affect the outcome of their treatment (28-30). Emergency pre-hospital care of the injured is essential for the final outcome of the treatment, because there are a series of time-sensitive actions that are necessary to provide effective care for the injured (3).

The concept of modern emergency medicine implies the provision of timely care at the scene, according to the uniform diagnostic and therapeutic doctrine. In this way, the injured persons receive equally high-quality health care, unnecessary deaths and disability are prevented, and at the same time funds and resources within the health care system are saved (3). Strengthening the emergency health care systems, which are the first point of contact, is essential to ensure timely and equitable access to care of injured persons (31). A recently published meta-analysis, which included the results of eight studies from six low-income and middle-income countries, on the impact of pre-hospital care on the outcome of treatment of injured persons, showed that the application of adequate pre-hospital care can reduce the risk of death in injured persons by as much as 25% (32). In addition, in most studies, it is stated that emergency response and the proximity of the first health care institution to the scene of the accident are significant for better survival of the injured in traffic accidents (33-37).

Trauma registry

In order to improve the survival of persons after road traffic injuries, it is necessary to establish a trauma registry. The trauma registry refers to the systematic reporting of each injured person and the collection of data for each of them. This registry contains information about the patient (age, gender, ethnicity, previous health information, etc.), injury (type of injury, mechanism of injury – road traffic accident, fall, violence, place of injury, etc.), treatment (pre-hospital care, interventions in emergency center, surgical procedures, duration of hospitalization, complications, etc.) and outcome (fatal outcome, degree of disability, healing, etc.) (38). This registry serves as an important tool for medical professionals, researchers and health policy makers aimed at monitoring and analyzing data, improving the quality of health care and creating health policies with an emphasis placed on prevention (38). Trauma registries also play an important role in identifying factors that cause injuries, which contributes to the adoption and implementation of various professional and educational programs aimed at the prevention of injuries (38). The significance of these registries is especially important in low- and middle-income countries, where the burden of injuries is still a big challenge, due to the lack of preventive interventions (39). Thanks to the trauma registry, it is possible to identify some of the risk factors, which can be identified and prevented (improvement of the quality of roads, education of drivers and pedestrians about traffic rules, traffic control, control of motor vehicles, etc.) (40). Previous experiences show that there are certain barriers to the implementation and use of data from the trauma registry, namely poor data quality, lack of information technologies, adequate road infrastructure, financing from funds, as well as the lack of educated and professional staff, and administrative difficulties, which can make trauma registries ineffective to some extent (40). In the last three decades, due to the introduction of trauma registries, the improvement of traffic infrastructure is evident, as well as the traffic education of all road users and an increase in the number of preventive campaigns, which contributed to a significant reduction in road traffic deaths in developed countries (41,42). An efficient trauma registry can significantly contribute to the

nesrećama u razvjenim delovima sveta (41,42). Efikasan registar traume može značajno doprineti unapređenju zdravstvenog sistema i boljim ishodima za lica sa traumatskim povredama.

Zaključak

Efikasno zbrinjavanje traume je prioritet u svim sistemima zdravstvene zaštite. S obzirom na veliku učestalost i smrtnost od traume, potrebno je sagledati sve potencijalne faktore rizika koji utiču na ishod lečenja povređenih. U cilju identifikovanja potencijalnih faktora rizika neophodno je razviti sistem nadzora nad traumama. U zemljama u kojima postoji registar traume došlo je do značajnog smanjivanja broja smrtnih ishoda među licima sa traumama i politraumama pre hospitalizacije, u toku hospitalizacije, nakon hospitalizacije i u procesu rehabilitacije. Neophodno je da svaka zemlja razvije sistem nadzora nad traumama, što će doprineti unapređenju dosadašnjih politika za kontrolu i smanjenje smrtnih ishoda kod traumatizovanih lica. Faktori kao što su dostupnost adekvatne zdravstvene zaštite, vreme reakcije hitne medicinske službe, iskustvo i organizacija trauma tima, udaljenost hospitalne zdravstvene ustanove i njena opremljenost i stručna osposobljenost za adekvatno zbrinjavanje teško povređenih, direktno utiču na kvalitet i ishod lečenja povređenih pacijenata i povećavaju šansu za preživljavanjem.

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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improvement of the health system and better outcomes in persons with traumatic injuries.

Conclusion

Effective trauma care is a priority in all health care systems. Given the high incidence and mortality rate of trauma, it is necessary to consider all potential risk factors that affect the outcome of the treatment of injured persons. In order to identify potential risk factors, it is necessary to develop a trauma surveillance system. In countries, which have trauma registries, there has been a significant reduction in the number of deaths among persons with trauma and polytrauma before hospitalization, during hospitalization, after hospitalization and during the rehabilitation process. Each country should necessarily develop its trauma surveillance system, which will contribute to the improvement of current policies for the control and reduction of fatal outcomes in traumatized persons. Factors such as the availability of adequate health care, the response time of the emergency medical service, the experience and organization of the trauma team, the distance of the hospital and its equipment and expertise for the adequate care of the seriously injured directly affect the quality and outcome of the treatment of injured patients and increase the chance of survival.

Competing interests

The author declared no competing interests.

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KVALITET ŽIVOTA DECE SA DISFAGIJOM I NJIHOVIH STARATELJA

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SAŽETAK

Disfagija se definiše kao poremećaj gutanja koji se može javiti u sve tri faze gutanja (oralnoj, faringealnoj ili ezofagealnoj). Manifestuje se bolom pri gutanju, otežanim gutanjem, zaglavljenošću hrane u grlu ili grudima, gorušicom, vraćanjem hrane i/ili želudačne kiseline u grlo, redukcijom težine, promuklošću, itd. Primarni cilj ovog rada je analiza kvaliteta života kod dece sa disfagijom i njihovih staratelja, a sekudarni pružanje osnovnih smernica za unapređenje kvalitet njihovog života. Podaci su prikupljeni pretraživanjem sledećih baza podataka: *PubMed*, *Google Scholar Advanced Search* i Konzorcijum biblioteka Srbije za objedinjenu nabavku - KoBSON. Pregledom rezultata dosadašnjih istraživanja deca sa disfagijom imaju lošiji kvalitet života u poređenju sa vršnjacima. Roditelji koji osećaju bespomoćnost, jer ne mogu da pomognu svojoj deci, doživljavaju visok nivo stresa. Takođe, deci sa disfagijom nedostaje potrebna podrška od strane zdravstvenog sistema, tako da je neophodno osmisliti smernice za pomoć deci sa disfagijom u cilju ostvarivanju njihovog ličnog potencijala u funkcionalnom, emocionalnom i socijalnom domenu.

Ključne reči: disfagija, deca, staratelji, kvalitet života, stres, smernice

Uvod

Disfagija se definiše kao poremećaj gutanja koji se može javiti u sve tri faze gutanja (oralna, faringealna ili ezofagealna). Manifestuje se bolom pri gutanju, otežanim gutanjem, zaglavljenošću hrane u grlu ili grudima, gorušicom, vraćanjem hrane i/ili želudačne kiseline u grlo, redukcijom težine, promuklošću, itd. Važno je napomenuti da svako dete sa disfagijom ima poremećaj hranjenja, ali svako dete sa poremećajem hranjenja nema disfagiju (1). Pedijatrijski poremećaj hranjenja deteta (engl. *Pediatric Feeding Disorde*r – PFD) se definiše kao poremećaj koji se javlja u oralnoj fazi gutanja, koji nije u skladu sa kalendarskim uzrastom deteta. Ovaj poremećaj je obično povezan sa drugim medicinskim, nutritivnim i/ili psihosocijalnim disfunkcijama (2).

Do danas, prevalencija disfagije nije tačno utvrđena. Može se javiti kao primarni (izolovan od bilo kog drugog zdravstvenog stanja) i sekundarni poremećaj (kao deo kliničke slike drugog zdravstvenog stanja). Takođe, može biti prisutna u sklopu razvojnih poremećaja koji imaju karakter doživotnih stanja, kao što su cerebralna paraliza, intelektualna ometenost, različiti sindromi, poput Daunovog sindroma, ili kao deo kliničke slike autizma (3). Disfagija je često prisutna kao deo kliničke slike stečenih poremećaja, kao što su traumatska povreda mozga, spinalna mišićna atrofija/distrofija, amiotrofična lateralna skleroza ili različiti maligniteti, koji su poslednjih godina sve prisutniji u dečijoj populaciji (4). Procenjuje se da se disfagija javlja kod čak 85% dece sa cerebralnom paralizom (5).

S obzirom na značaj hranjenja kao jedne od osnovnih fizioloških funkcija svakog čoveka, disfagija ima dalekosežne posledice na opšte zdravlje mladog organizma i njegovo blagostanje. Negativan uticaj na opšte zdravlje organizma definiše se kao narušavanje kvaliteta života u fizičkom, psihičkom ili socijalnom domenu (6,7). Kvalitet života dece dodatno je narušen usled narušenog zdravlja

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REVIEW ARTICLE

QUALITY OF LIFE IN CHILDREN WITH DYSPHAGIA AND THEIR CAREGIVERS

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SUMMARY

Dysphagia is defined as a swallowing disorder that can occur in all three phases of swallowing (oral, pharyngeal or esophageal). It is manifested as pain while swallowing, difficulty swallowing, feeling of food stuck in the throat or in the chest, heartburn, regurgitation of food and/or stomach acid, weight loss, hoarseness, etc. The primary aim of this study is to analyze the quality of life in children with dysphagia and their caregivers, while the secondary aim is to provide basic guidelines for improving the quality of their life. Data were collected by searching the following databases: PubMed, Google Scholar Advanced Search and Consortium of Serbian Libraries for Coordinated Purchase (Serbian: KoBSON). The review of previous research results has shown that children with dysphagia have a worse quality of life in comparison to their peers. Parents, who feel helpless because they cannot help their children, experience high levels of stress. Also, children with dysphagia lack the necessary support from the health system, and therefore, it is necessary to create guidelines to help children with dysphagia aimed at realizing their personal potentials in the functional, emotional and social domain.

Key words: dysphagia, children, caregivers, quality of life, stress, guidelines

Introduction

Dysphagia is defined as a swallowing disorder that can occur in all three phases of swallowing (oral, pharyngeal, esophageal). It is manifested as pain while swallowing, difficulty swallowing, feeling of food stuck in the throat or in the chest, heartburn, regurgitation of food and/or stomach acid into the throat, weight loss, hoarseness, etc. It is important to note that every child with dysphagia has a feeding disorder, but not every child with a feeding disorder has dysphagia (1). Pediatric feeding disorder (PFD) is defined as a disorder that occurs in the oral phase of swallowing, which is not in accordance with the child's age. This disorder is usually associated with other medical, nutritional and/or psychosocial dysfunctions (2).

The prevalence of dysphagia has not been precisely determined so far. It can occur as a primary (isolated from any other medical condition) and a secondary disorder (as part of the clinical picture of another medical condition). Also, it can occur as part of developmental disorders that have the character of lifelong conditions, such as cerebral palsy, intellectual disability, different syndromes, such as Down's syndrome, or as part of the clinical picture of autism (3). Dysphagia is often present as part of the clinical picture of acquired disorders, such as traumatic brain injury, spinal muscular atrophy/dystrophy, amyotrophic lateral sclerosis or various malignancies, which have been increasingly present in the pediatric population in recent years (4). It has been estimated that dysphagia occurs in as many as 85% of children with cerebral palsy (5).

Considering the importance of feeding as one of the basic physiological functions of every human being, dysphagia has far-reaching consequences on the general health and well-being of the young organism. A negative impact on the general health of the organism is defined as the impairment of the quality of life in the physical, psychological and social domain (6,7). Children's quality of life is fur-

u ishrani i rizika od prerane smrti usled gušenja ili aspiracione pneumonije (8).

U cilju održavanja opšteg zdravlja deteta i prevencije aspiracije (udisanja) primenjuju se kompenzacione intervencije, kao što su modifikacija tečnosti i hrane koju treba svakodnevno unositi, promena veličine zalogaja i promena teksture hrane (4,9). Pored toga što se na ovaj način obezbeđuje opšte zdravlje mladog organizma, ove kompenzacione intervencije mogu dovesti do određenih zdravstvenih komplikacija. Naime, smanjen unos tečnosti može dovesti do naknadne dehidracije organizma (10). To znači da kompenzacione tehnike s jedne strane omogućavaju da se na neki način očuva zdravlje organizma, a sa druge strane smanjuju osećaj uživanja u obroku, koji je prateći osećaj svakog obroka kod dece. Na ovaj način se dodatno narušava kvalitet života dece sa disfagijom (11).

Klinička slika disfagije i kompenzatorne tehnike koje se koriste u lečenju disfagije kod dece mogu negativno uticati na kvalitet njihovog života (12). Razumevanje problema sa kojima se suočavaju ova deca i članovi njihovih porodica posebno je važno za celokupno društvo i pomaže u osmišljavanju boljih smernica i intervencija koje će poboljšati kvalitet života ove grupe stanovnika. *Dodril* i *Estrem* ističu da su problemi sa hranjenjem koje mogu imati odrasli podjednako česti kod dece sa disfagijom. Naime, ova deca prijavljuju čest umor od jela, smanjeno uživanje u hranjenju i izbegavanje mnogih situacija, kao što su rođendani, proslave i drugi javni događaji (13).

Sagledavanje nalaza dosadašnjih istraživanja o kvalitetu života dece sa disfagijom je od posebnog značaja za osmišljavanje budućih smernica za poboljšanje kvaliteta njihovog života. Shodno tome, primarni cilj ovog rada je analiza rezultata dosadašnjih istraživanja o kvalitetu života dece sa disfagijom i njihovih staratelja, a sekundarni postavljanje osnovnih smernica u cilju poboljšanja kvaliteta njihovog života.

Metode

Pretraga radova obavljena je uz pomoć dostupnih baza podataka *PubMed*, *Google Scholar Advanced Search* i Konzorcijuma biblioteka Srbije za objedinjenu nabavku – KoBSON. Tokom pretrage korišćene su sledeće ključne reči: disfagija kod dece, kvalitet života i disfagija kod dece, kompenzatorne tehnike kod disfagije, podrška deci sa disfagijom, smernice za disfagiju kod dece i kvalitet života staratelja dece sa disfagijom. Pretraživanje je urađeno za period 2001-2024. godine. U analizu su uključeni samo oni radovi koji su bili napisani na engleskom jeziku.

Dijagnostika pedijatrijske disfagije

Suočavanje sa brojnim izazovima koje disfagija donosi deci i njihovim porodicama podstiče istraživače da detaljno analiziraju ovo zdravstveno stanje. Zbog svoje multidisciplinarnosti, disfagija kod dece ne podleže klasičnom dijagnostičkom pristupu, kao što je to slučaj sa dijabetesom ili urođenim srčanim oboljenjima. U cilju dijagnostikovanja disfagije obično se, pored anamneze i kliničkog pregleda, traži mišljenje gastroenterologa (ezofagoskopija, RTG jednjaka sa kontrastom, evaluacija gutanja fleksibilnim endoskopom), otorinolaringologa (laringoskopija), endokrinologa (ultrazvuk štitaste žlezde, hormonski status), pulmologa (bronhoskopija, RTG grudnog koša), a nekada i pregled od strane drugih specijalista (neurologa, psihijatra, dr.).

Disfagija može se zasnivati na medicinskim problemima, psihosocijalnim problemima ili razvojno-senzornim problemima (hiposenzitivnost/preosetljivost) na određenu teksturu hrane. Na tabeli 1 prikazani su dijagnostički kriterijumi za pedijatrijski poremećaj hranjena (2). Disfunkcija u nekom od domena (medicinski, nutritivni, veštine hranjenja i psihosocijalni) u poremećaju hranjenja dece ima dalekosežne posledice na kvalitet života pojedinca i njegove porodice. Oštećenja u jednom domenu mogu uticati na nastanak poremećaja u bilo kom drugom (2).

Kvalitet života dece sa disfagijom

Upoređujući zadovoljstvo kvalitetom života dece sa disfagijom i dece koja imaju druga stanja, kao što su transplantacija bubrega ili akutna insuficijencija jetre, uočeno je da deca sa disfagijom imaju lošiji kvalitet života (14,15). Ovo se može dovesti u vezu sa činjenicom da je proces hranjenja jedna od osnovnih fizioloških funkcija koja se uspostavlja aktivnom interakcijom dece i roditelja u ranom detinjstvu. Svaki poremećaj u ovoj funkciji stvara osećaj straha i razočaranja kod roditelja. Tokom svakodnevnih aktivnosti roditelji nesvesno projektuju svoje negativne emocije na dete. Pro-

ther impaired due to impaired health related to nutrition and the risk of premature death due to suffocation or aspiration pneumonia (8).

In order to maintain the child's general health and prevent aspiration (inhalation), compensatory interventions are implemented, such as modification of liquids and food that should be taken every day, changing the size of morsels and changing the texture of food (4,9). In addition to ensuring the general health of the young organism in this way, these compensatory interventions can lead to certain health complications. Namely, reduced fluid intake can lead to subsequent dehydration of the body (10). This means that compensatory techniques, on the one hand, allow the health of the organism to be preserved in some way, and on the other hand, they reduce the feeling of enjoyment of the meal, which is the accompanying feeling of every meal in children. In this way, the quality of life of children with dysphagia is additionally impaired (11).

The clinical picture of dysphagia and compensatory techniques that are used to treat dysphagia in children can negatively affect the quality of their life (12). Understanding the problems encountered by these children and their family members is particularly important for the whole society and helps in designing better guidelines and interventions that will improve the quality of life of this population group. Dodrill and Estrem emphasize that feeding problems that can be experienced by adults are equally common in children with dysphagia. Namely, these children report frequent fatigue caused by eating, reduced enjoyment while eating and avoidance of many situations, such as birthdays, celebrations, and other public events (13).

Reviewing the findings of previous studies on the quality of life of children with dysphagia is of particular importance for creating future guidelines for improving their quality of life. Accordingly, the primary aim of this study is to analyze the results of previous studies on the quality of life of children with dysphagia and their caregivers, and the secondary aim is to establish basic guidelines aimed at improving their quality of life.

Methods

The studies were searched using the available databases PubMed, Google Scholar Advanced Search and Consortium of Serbian Libraries for Coordinated Purchase (Serbian: KoBSON). During the search, the following key words were used: dysphagia in children, quality of life and dysphagia in children, compensatory techniques in dysphagia, support for children with dysphagia, guidelines for dysphagia in children and quality of life of caregivers of children with dysphagia. The search was carried out for the period 2001-2024. Only those studies that were written in English were included in the analysis.

Diagnostics of pediatric dysphagia

Facing the numerous challenges, which dysphagia brings to children and their families, prompts researchers to analyze this medical condition in detail. Due to its multidisciplinary nature, dysphagia in children is not subject to the classic diagnostic approach, as is the case with diabetes or congenital heart diseases. In order to diagnose dysphagia, in addition to anamnesis and clinical examination, usually the opinion of a gastroenterologist is required (esophagoscopy, esophagram, flexible endoscopic evaluation of swallowing), as well as the opinion of an otorhinolaryngologist (laryngoscopy), endocrinologist (X-ray scanning the thyroid gland, hormonal status), pulmonologist (bronchoscopy, a chest X-ray), and sometimes the examination of other specialists (neurologist, psychiatrist, etc.).

Dysphagia can be based on medical problems, psychosocial problems, or developmental-sensory problems (hyposensitivity/hypersensitivity) related to certain food texture. Diagnostic criteria for the pediatric feeding disorder are shown in Table 1 (2). Dysfunction in some of the domains (medical, nutritional, feeding skills, psychosocial) in the pediatric feeding disorder has far-reaching consequences on the quality of life of an individual and his family. Damage in one domain can affect the occurrence of disorders in any other domain (2).

Quality of life of children with dysphagia

Comparing the satisfaction with the quality of life of children with dysphagia and children with other conditions, such as kidney transplantation or acute liver failure, it was observed that children with dysphagia had worse quality of life (14,15). This can be related to the fact that the feeding process is one of the basic physiological functions that are established by the active interaction between

Tabela 1. Predloženi dijagnostički kriterijumi za pedijatrijski poremećaj hranjenja (prilagođeno na osnovu reference 2)

A) Smetnja u oralnoj fazi uzimanja hrane, koja nije u skladu sa uzrastom, traje bar 2 nedelje i povezana je sa jednom ili više sledećih disfunkcija:

Medicinska disfunkcija, o čemu svedoči bilo šta od navedenog:	**Nutritivna disfunkcija, o čemu svedoči bilo šta od navedenog:**	**Disfunkcija povezana sa veštinom hranjenja, o čemu svedoči bilo šta od navedenog:**	**Psihosocijalna disfunkcija, o čemu svedoči bilo šta od navedenog**
Kardiorespiratorni zastoj tokom oralnog unosa hrane	Neuhranjenost	Potreba za modifikacijom teksture tečnosti ili hrane	Aktivno ili pasivno izbegavanje deteta tokom unosa hrane ili hranjenja
Aspiracija ili aspiracijska pneumonija	Nedostatak specifičnih nutrijenata ili značajno ograničen unos jednog ili više nutrijenata zbog smanjene raznovrsnosti ishrane	Korišćenje modifikovane pozicije ili opreme tokom hranjenja	Neadekvatno upravljanje od strane staratelja detetovim potrebama za hranjenjem i/ili ishranom
	Oslanjanje na enteralnu ishranu ili oralne suplemente za održavanje ishrane i/ili hidratacije	Korišćenje modifikovanih strategija hranjenja	Poremećaj društvenog funkcionisanja u kontekstu hranjenja
			Poremećaj odnosa između deteta i staratelja koji se povezuje sa hranjenem

B) Odsustvo kognitivnih procesa u skladu sa poremećajima hranjenja i modelom oralnog unosa hrane nije posledica nedostatka hrane ili kulturoloških normi

duženim ispoljavanjem negativnih emocija stvaraju osećaj krivice kod deteta, usled njegove nesposobnosti tokom hranjenja (16). S druge strane, narušen kvalitet života u drugim stanjima (transplantacija bubrega ili akutna insuficijencija jetre) može biti kratkotrajne prirode, sa kolebanjima psihosocijalnog stanja, što će nakon intervencije podstaći nastanak pozitivnih emocija i motivacije da nastavi rehabilitaciju sa verom u bolje dane za porodicu (14-16).

Fracchia i saradnici (17) su u svojoj studiji, na uzorku od 35 dece, uzrasta od 5 do 79 meseci, analizirali kvaliteta života dece godinu dana nakon hirurške intervencije rascepa larinksa. Kod sve dece je došlo do blagog poboljšanja kvaliteta života, ali je njihov kvalitet života bio lošiji u odnosu na njihove vršnjake. Nezadovoljstvo koje osećaju stvara stres i razočarenje kod roditelja, koji obično očekuju trajno rešenje posle hirurške intervencije. Druge kvalitativne studije, takođe, pokazuju da deca sa disfagijom i članovi njihovih porodica u velikoj meri imaju redukovano učešće u društvenom životu (18,19).

Rama i saradnici (20) su, u svojoj međunarodnoj studiji sprovedenoj u Brazilu i Portugalu, testirali kvalitet života roditelja/negovatelja dece sa disfagijom. Uzorak je činilo 95 roditelja dece sa različitim stepenom disfagije. Rezultati njihovog istraživanja pokazali su da kvalitet života porodice dodatno narušava nedostatak neophodne podrške zdravstvenog sistema i nedostupnost obučenih stručnjaka u ovoj oblasti.

Estem i saradnici (21) su anketirali 12 roditelja dece sa disfagijom i zaključili da porodice dece sa disfagijom nailaze na mnoge prepreke i beskorisne savete kada traže pomoć. Roditelji često ističu da je put do pronalaženja specijaliste koji poznaje i razume problem sa kojim se njihovo dete suočava veoma dug i naporan. Ističu i da bez samoinicijative za dalju analizu zdravstvenog stanja svog deteta ne bi mogli da poprave njegovo stanje. Nešto kasnije, *Estem* i saradnici (22) su, u svom preglednom radu, analizirali rezultate istraživanja pre 2000. i posle 2000. godine. Upoređivanjem rezultata ranijih i sadašnjih studija došli su do zaključka da roditelji, posebno majke, krive sebe za probleme u hranjenju svog deteta. Ističu da nedostatak neophodne podrške stručnjaka adekvatnog profila i zdravstvenog sistema uopšte predstavljaju dugogodišnje probleme koji do danas nisu rešeni.

Table 1. Proposed diagnostic criteria for pediatric feeding disorder (adapted according to reference 2)

A) A disturbance in oral intake of nutrients, inappropriate for age, lasting at least 2 weeks and associated with 1 or more of the following:

Medical dysfunction, as evidenced by any of the following:	Nutritional dysfunction, as evidenced by any of the following:	Feeding skill dysfunction, as evidenced by any of the following:	Psychosocial dysfunction, as evidenced by any of the following:
Cardiorespiratory compromise during oral feeding	Malnutrition	Need for texture modification of liquid or food	Active or passive avoidance behaviors by child when feeding or being fed
Aspiration or recurrent aspiration pneumonitis	Specific nutrient deficiency or significantly restricted intake of one or more nutrients resulting from decreased dietary diversity	Use of modified feeding position or equipment	Inappropriate caregiver management of child's feeding and/or nutrition needs
	Reliance on enteral feeds or oral supplements to sustain nutrition and/or hydration	Use of modified feeding strategies	Disruption of social functioning within a feeding context
			Disruption of caregiver-child relationship associated with feeding

B) Absence of the cognitive processes consistent with eating disorders and pattern of oral intake is not due to a lack of food or congruent with cultural norms.

children and parents in early childhood. Any disturbance of this function creates a sense of fear and disappointment in parents. During everyday activities parents unconsciously project their negative emotions onto the child. The prolonged expression of negative emotions creates a sense of guilt in the child, due to his inability during feeding (16). On the other hand, impaired quality of life in other conditions (kidney transplantation or acute liver failure) can be short-term, with fluctuations in the psychosocial state, which will encourage positive emotions after the intervention and motivation to continue rehabilitation with faith in better days for the family (14-16).

Fracchia and associates (17) in their study, which included the sample of 35 children, aged 5 to 79 months, analyzed the quality of life of children one year after surgical intervention due to laryngeal cleft. All children had a slight improvement in their quality of life, but their quality of life was worse in comparison to their peers. The dissatisfaction they felt created stress and disappointment of their parents, who usually expected a permanent solution after the surgical intervention. Other qualitative studies also showed that children with dysphagia and their parents reduced their participation in social life to a large extent (18,19).

Rama and associates (20) tested the quality of life in parents/caregivers of children with dysphagia in the international study, which was conducted in Brazil and Portugal. The sample consisted of 95 parents of children with different degrees of dysphagia. The results of their study showed that the quality of family life was further impaired by the lack of necessary support of the health care system and the unavailability of trained experts in this field.

Estem et al. (21) surveyed 12 parents of children with dysphagia and concluded that families of children with dysphagia encounter many obstacles and useless advice when they seek help. Parents often emphasize that the way to finding a specialist who knows and understands the problem their child is facing is very long and arduous. They also point out that without self-initiative for further analysis of their child's health condition, they would not be able to improve his condition. Later, Estem et. al (22), in their review article, analyzed the results of studies before and after 2000. By comparing the results of previous and current studies, they came to the conclusion that parents, especially mothers, blame themselves for problems related to feeding their child. They point out that the lack of necessary support from profession-

Izrada smernica u radu navodi se kao optimalno rešenje za podsticanje poboljšanja kvaliteta života dece i porodice.

S obzirom da je disfagija često hronično zdravstveno stanje i da dugotrajni problemi sa kojima se suočavaju pojedinci utiču na njihovo opšte funkcionisanje i dobrobit ljudi sa kojima su u stalnom kontaktu, *Leeman* i saradnici (23) su u metaanalizi, koja je uključila 54 studije koje analiziraju funkcionalnost i dobrobit dece i porodice, primenili četiri skale: skalu za procenu prilagodljivosti i kohezije, skalu porodičnog okruženja, indeks porodičnih odnosa ili procene porodice. Rezultati ovog istraživanja su pokazali značajnu vezu između mentalnog zdravlja dece i opšteg funkcionisanja porodice. Utvrđene su i značajne uzročno-posledične veze između porodične disfunkcije i poremećaja ponašanja kod dece, njihove socijalne kompetencije i kvaliteta života.

Simeon i saradnici (14) su sproveli studiju preseka, u oblasti Velikog Bostona, u periodu od 2017. do 2018. godine, tako što su analizirali uticaj poremećaja u ishrani na kvalitet života pedesetoro dece uzrasta od 2 do 5 godina i uporedili ga sa kvalitetom života dece sa drugim stanjima. Roditelji su popunjavali generičku skalu kvaliteta života dece 4.0 (engl. *Pediatric Quality of Life Generic Core Scales 4.0* - PedsQL) i Upitnik o uticaju na hranjenje/gutanje (engl. *Feeding/Swallowing Impact Survey* - FS-IS). Upitnik o uticaju na hranjenje/gutanje predstavlja subjektivnu skalu ocenjivanja koja se koristi za procenu kvaliteta života u vezi sa zdravljem (HRQoL) staratelja čija dece imaju poremećaj hranjenja/gutanja. Rezultati ove studije su pokazali da deca sa poremećajima u ishrani (deca su imala heterogene medicinske dijagnoze) imaju loš kvalitet života (72,82±19,21), kao i njihovi staratelji (2,33±0,89). Brojna istraživanja pokazuju da roditelji doživljavaju visok nivo stresa zbog problema sa ishranom njihove dece (24-26).

Smernice za rad sa decom koja imaju disfagiju

Do danas nisu osmišljene osnovne smernice za rad sa decom koja imaju disfagiju u smislu poboljšanja kvaliteta njihovog života. Naime, studije fokusiraju svoja istraživanja na ublažavanje primarnih zdravstvenih problema ove dece, zanemarujući njihove psihosocijalne potrebe i podršku okoline koja im je potrebna. S obzirom na to da je disfagija višedimenzionalni poremećaj, ona se mora tretirati kao takva – multidisciplinarnim pristupom. Zato je veoma važno svakom detetu pristupiti holistički, uz angažovanje stručnjaka različitih profila (otolaringolog, stomatolog, nutricionista, alergolog, psihijatar, psiholog i logoped) (27).

Osnovne smernice koje se mogu koristiti u radu sa ovom decom, a koje se pre svega odnose na poboljšanje njihovog kvaliteta života, uključuju sledeće: roditelje treba posmatrati kao koterapeute u radu, jer oni najviše vremena provode sa decom i prvi se uključuju u njihovo hranjenje; neophodan je individualni plan rehabilitacije u cilju poboljšanja ishrane, jer je svako dete individua za sebe; treba razdvojiti šta dete dobro radi, kako bi bilo motivisano za dalji rad; treba omogućiti obuku za pružanje usluga od strane više negovatelja, kako bi bilo izbegnuto sagorevanje primarnog negovatelja; neophodno je obezbediti resurse za socijalne programe, koji mogu pomoći roditeljima i deci da se suoče sa problemima; organizovati edukacije o rizicima i komplikacijam povezanim sa aspiracijom starateljima dece sa disfagijom u cilju eliminisanja/minimiziranja aspiracije i omogućavanja kvalitetne ishrane, zdravlja i kvaliteta života; obezdediti obuku starateljima o vrstama i metodama vežbi orofacijalne regije koje mogu primenjivati u kućnoj atmosferi.

Zaključak

Hranjenje se smatra osnovnom roditeljskom aktivnošću. Poremećaji gutanja kod dece mogu imati dalekosežne posledice po njihovo zdravlje i kvalitet života uopšte. Disfagija se smatra ozbiljnim problemom kod dece, jer je detinjstvo period brzog rasta i razvoja, a bilo kakve smetnje u pogledu ishrane mogu narušiti dalji razvoj deteta, a samim tim i kvalitet njegovog života.

Ranjivost funkcije hranjenja u detinjstvu, s jedne strane, i činjenica da deca ubrzano rastu i razvijaju se sa druge strane, postavlja zadatak da se pronađu najprihvatljiviji modeli rada sa ovom decom uz uvažavanje njihove individualnosti. Stoga, polazna tačka u radu uvek treba da bude razumevanje kako različita zdravstvena stanja mogu da naruše kvalitet života pojedinca s ciljem pronalaženja adekvatnih smernica koje bi pomogle da se ova deca ostvare u funkcionalnom, emocionalnom i društvenom domenu. Takođe, paralelno treba raditi na unapređenju kvaliteta života njihovih staratelja.

als in different fields and the health care system, in general, represent long-standing problems that have not been solved so far. In the study, the development of guidelines is claimed to be the optimal solution for encouraging the improvement of the quality of life of children and families.

Considering the fact that dysphagia is a chronic health condition and that the long-standing problems faced by individuals affect their general functioning and the well-being of people, with whom they are in constant contact. Leeman et al. (23) in a meta-analysis, which included 54 studies that analyzed the functionality and well-being of children and families, applied four scales: the scale for the assessment of adaptability and cohesion, the scale of family environment, the index of family relations or family assessments. The results of this study showed a significant relationship between children's mental health and the general functioning of the family. Significant causal relationships between family dysfunction and behavioral disorders in children, their social competence and quality of life were also established.

Simione et al. (14) conducted a cross-sectional study, in the region of Greater Boston, from 2017 to 2018, by analyzing the impact of eating disorders on the quality of life of 50 children aged 2 to 5 years and comparing it with the quality of life of children with other conditions. Parents filled out the Pediatric Quality of Life Generic Core Scales 4.0 (PedsQL) and the Feeding/Swallowing Impact Survey (FS-IS). The Feeding/Swallowing Impact Survey is a subjective assessment scale that is used to assess the health-related quality of life (HRQoL) of caregivers, whose children have feeding/swallowing disorders. The results of this study showed that children with eating disorders (children had heterogeneous medical diagnoses) had a poor quality of life (72.82+19.21), as well as their caregivers (2.33+0.89). Numerous studies show that parents experience a high level of stress due to the eating problems of their children (24-26).

Guidelines for working with children who have dysphagia

To date, no basic guidelines have been developed for working with children who have dysphagia in terms of improving their quality of life. Namely, studies focus their research efforts on alleviating the primary health problems of these children, neglecting their psychosocial needs and the necessary support of the environment. Considering the fact that dysphagia is a multidimensional disorder, it must be treated as such – using a multidisciplinary approach. Therefore, it is very important to approach each child in a holistic way, and engage professionals in different fields (otolaryngologist, dentist, nutritionist, allergologist, psychiatrist and speech therapist) (27).

Basic guidelines, which can be used when working with these children, and which primarily relate to improving their quality of life, include the following: parents should be seen as co-therapists in the work, because they spend most time with their children and they are the first to be involved in their feeding; an individual rehabilitation plan is necessary aimed at improving nutrition because each child is an individual for himself; one should discern what the child does well, in order motivate him for future work; training for the provision of services by several caregivers should be allowed, in order to avoid the burnout of the primary caregiver; it is necessary to provide resources for social programs, which can help parents and children to face problems; organize education about risks and complications associated with aspiration for the caregivers of children with dysphagia aimed at eliminating/minimizing aspiration and enabling quality nutrition, health and quality of life; provide training for caregivers about types and methods of orofacial exercises that can be implemented in the home environment.

Conclusion

Feeding is deemed to be a basic parenting activity. Swallowing disorders in children can have far-reaching consequences for their health and quality of life. Dysphagia is considered to be a serious problem in children, because childhood is the period of fast growth and development, and any disturbances related to nutrition can impair further development of the child, and therefore, the quality of his life.

The vulnerability of the feeding function in childhood, on the one hand, and the fact that children grow and develop fast, on the other hand, set a task to find the most appropriate models of work with these children while respecting their individuality. Therefore, the starting point in the work should always imply understanding how different

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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health conditions can impair the quality of life of an individual aimed at finding adequate guidelines that would help these children to accomplish their goals in the functional, emotional and social domain. Also, work should be done in parallel to improve the quality of life of their caregivers.

Competing interests

The authors declared no competing interests.

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HOLISTIČKI PRISTUP U ZDRAVSTVENOJ NEZI OSOBA SA DEPRESIJOM

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SAŽETAK

Depresija je poremećaj raspoloženja koji se karakteriše prisustvom bezrazložne tuge, usamljenosti i beznađa. Radi obezbeđivanja što kvalitetnije nege osoba sa depresijom primenjuje se holistički pristup. Cilj ovog preglednog rada je da sagleda značaj primene holističkog pristupau zdravstvenoj nezi osoba sa depresijom, kao i značaj sestrinske aktivnosti u destigmatizaciji ovih osoba. U okviru ovog preglednog rada uključena su istraživanja objavljena na engleskom jeziku, a do kojih se došlo na osnovu pretraživanja PUBMED baze podataka, za poslednjih 20 godina, korišćenjem sledećih ključnih reči: holistički pristup, mentalno zdravlje, depresija, zdravstvena nega, medicinske sestre. Veliki broj istraživanja se bavi holističkim pristupom u nezi lica sa depresijom. Holistički pristup predstavlja posmatranje bića kao celine, odnosno predstavlja brigu o čovekom telu, umu i duhu. Potrebe lica sa depresijom po pitanju negesu brojne, zbog čega je važno sistematski i planski sagledati njihove potrebesa holističkog aspekta, a sve u cilju planiranja što adekvatnijih intervencija za njihovo rešavanje ili umanjivanje. Poseban akcenat stavlja se na unapređenje životnih navika – zdrava ishrana, dobar san, svakodnevna fizička aktivnost, kao i na unapređenje socijalnih aspekata života kroz druženje i organizovanje različitih aktivnosti. Edukacijom stanovništva, a posebno mladih, medicinske sestre značajno doprinose u destigmatizaciji lica sa depresijom. Medicinske sestre svoje aktivnosti treba da usmeravaju na primenu holističkog pristupa u nezi i lečenju osoba sa depresijom, prihvatanju dokumentacije procesa zdravstvene nege kao standardne metode u sestrinskom radu koja omogućava potpunu implementaciju holističkog pristupa u zdravstvenoj nezi, sprovođenje istraživanja o značaju primene holističkog pristupa u profesionalnom radu medicinskih sestara, edukacijubudućeg kadra, destigmatizaciju osoba sa depresijom, kao na promociju mentalnog zdravlja.

Ključne reči: holistički pristup, mentalno zdravlje, depresija, zdravstvena nega, medicinske sestre

Uvod

Depresija je mentalni poremećaj koji karakteriše stalni osećaj tuge i gubitak interesovanja za aktivnosti koje inače pričinjavaju zadovoljstvo, a dolazi i do poremećaja sna, apetita i koncentracije. Depresija se javlja kod 5% odraslih u svetu i predstavlja jedan od najčešćih mentalnih poremećaja (1). Ovo oboljenje predstavlja pravu pošast savremenog doba, jer se način života odražava na psihičko zdravlje ljudi. Depresija se u 20-45% slučajeva javlja u sklopu malignih bolesti, 26-34% kod cerebrovaskularnih oboljenja, 33-35% kod hroničnih stanja, 15-33% kao posledica infarkta miokarda i 40% kao posledica Parkinsonove bolesti (2). Najveći problem je pojava visoke stope samoubistva mladih ljudi, kao posledica depresije.

Holistički pristup je osnovni pristup u sestrinskom radu i od njegove primene u velikoj meri zavisi uspeh u lečenju i zdravstvenoj nezi. Predstavlja posmatranje osobe kao jedne celine, odnosno brigu o čovekovom telu, umu, duhu i emocijama, a sve radi postizanja ravnoteže u svim oblastima života (3-5). To znači da se holističkim pristupom

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A HOLISTIC APPROACH IN THE NURSING CARE OF PERSONS WITH DEPRESSION

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SUMMARY

Depression is a mood disorder characterized by the presence of unexplained sadness, loneliness, and hopelessness. In order to ensure the highest possible quality of care for patients with depression, a holistic approach is applied. The aim of this review was to assess the importance of applying a holistic approach in the nursing care of patients with depression, as well as nursing activities in the destigmatization of these persons. This review includes research published in English, based on the search of the PUBMED database, for the last 20 years, using the following keywords: holistic approach, mental health, depression, health care, nurses. A large number of o studies deal with a holistic approach in the nursing care of people with depression. The holistic approach represents the observation of the being as a whole, care for the human body, mind and spirit. The care needs of persons with depression are numerous, and therefore, it is important to plan and systematically assess their needs from a holistic aspect in order to plan the most adequate interventions to solve or reduce them. A special emphasis is placed on improving the lifestyle – healthy diet, good sleep, daily physical activity, as well as on improving social life aspects through socializing and organizing various activities. Nurses make a significant contribution to destigmatization, by educating the population, especially young people. Nurses should focus their activities on applying the holistic approach in the health care and treatment of patients with depression, accepting the documenting of health care process as a standard method in nurses' work which ensures the complete implementation of a holistic approach to health care, conducting research on the significance of implementing a holistic approach in the professional nurses' work, educating the future personnel, destigmatizing the patients with depression, as well as on mental health promotion.

Key words: holistic approach, mental health, depression, nursing care, nurses

Introduction

Depression is a mental health condition that is characterized by a constant feeling of sadness and loss of interest in activities that normally give pleasure, as well as disturbances related to sleep, appetite and concentration. Depression occurs in 5% of adults in the world and it represents one of the most common mental disorders (1). This disease is a real scourge of the contemporary time, because modern lifestyle affects mental health. Depression occurs in 20-45% of cases as part of malignant diseases, 26-34% in cerebrovascular diseases, 33-35% in chronic conditions, 15-33% as a consequence of myocardial infarction, and 40% as a consequence of Parkinson's disease (2). The biggest problem is the emergence of a high rate of suicide among young people, as a consequence of depression.

A holistic approach is the basic approach in nurses' work and the success of treatment and health care largely depend on its application. It means that a person is observed as a whole, which includes the care of human body, mind, spirit and emotions, which is aimed at achieving balance in all fields of life (3-5). Thus, a holistic approach

sprovodi: ostvarivanje fizičkog, mentalnog, emocionalnog, socijalnog i duhovnog zdravlja istovremeno; promene načina života ka zdravim životnim stilovima; primena prirodne terapije; podsticanje pacijenata da aktivno učestvuju u rešavanju svojih zdravstvenih problema kroz donošenje odluka po pitanju lečenja itd. (4,5). Takođe, holistički pristup podrazumeva stalno unapređenje znanja kroz različite vidove edukacije, osposobljavanje za samopomoć, zalaganje i promene u načinu života koje promovišu bolje zdravlje, kao što su zdrava ishrana, fizička aktivnost, dobar san, borba protiv stresa i ostvarivanje podrške u vezi sa bolešću (4). Nasuprot holističkom pristupu zdravlju, koji se ponekad naziva integrativna medicina ili zdravlje cele osobe, konvencionalna medicina se fokusira prvenstveno na fizičke simptome bolesti, veoma često ne uzimajući u obzir ostale dimenzije zdravlja.

Holistički prisup, takođe, obezbeđuje sagledavanje svakog aspekta čovekovog bića i otkriva uzroke nastanka oboljenja, ali i načine na koje se bolest može lečiti ili tegobe redukovati radi unapređenja kvaliteta života. Zdrava osoba se može smatrati zdravom samo onda kada je njeno telo u potpunom blagostanju i kada su telo, um i duh u potpunoj ranoteži (3). Kroz holistički pristup pronalazi se veza depresije sa brojnim drugim oboljenjima, što potvrđuje kompleksnost pri pružanju zdravstvenih usluga ovim pacijentima. Okosnicu savremenog sestrinstva predstavlja holistički pristup nezi (6). Ovaj pristup zahteva visoku stručnost, sposobnost da se proceni celokupno zdravstveno stanje pacijenta, veliki obim veština zdravstvene nege koje se primenjuju u svrhu rešavanja ili umanjivanja bolesnikovih aktuelnih ili preveniranja potencijalnih zdravstvenih problema (7). Medicisnka sestra treba da ima razumevanje, strpljenje, empatiju, pronicljivost i dobro rasuđivanje, kako bi mogla da sagleda zdravlje pacijenta u celini da bi mu pružila odgovarajuću negu, podršku i terapiju.

Depresija izaziva poremećaj i u telu, duhu i umu čoveka te je važno da se otkrije na koje načine je svaki deo zdravlja narušen i kako se to može lečiti. Cilj ovog preglednog rada je da se sagleda značaj primene holističkog pristupa u zdravstvenoj nezi osoba sa depresijom, kao i značaj sestrinske aktivnosti u destigmatizaciji ovih osoba.

Metode

U okviru ovog preglednog rada uključena su istraživanja objavljena na engleskom jeziku, a do kojih se došlo na osnovu pretraživanja PUBMED baze podataka, za poslednjih 20 godina, korišćenjem sledećih ključnih reči: holistički pristup, mentalno zdravlje, depresija, zdravstvena nega, medicinske sestre.

Značaj primene holističkog pristupa u nezi i lečenju osoba sa depresijom

U Indiji je 2017. godine sprovedeno istraživanje sa ciljem da se proceni efikasnost primene holističkog grupnog programa promocije zdravlja na obrazovni status, anksioznost i depresiju (8). Studijom je obuhvaćeno po 30 devojaka sa *Dharwad* Univerziteta u Indiji, a koje su imale neki oblik anksioznosti i depresije. Ispitanice su podeljene u eksperimentalnu i kontrolnu grupu, metodom randomizacije. Nakon tri meseca primene holističkog grupnog programa promocije zdravlja (koji se sastojao od osam sesija: koncept holističkog zdravlja, razumevanje sopstvenog stresa, identifikovanje stresora, kako se reaguje na stres, emocije i blagostanje, ljubav prema sebi, moj rast i moja snaga, moja podrška i mreža i transformacija sebe), primećen je značajan napredak među ispitanicama u eksperimentalnoj grupi u odnosu na kontrolnu. Ispitanice su tokom ova tri meseca naučile kako da prepoznaju simptome svoje bolesti i svoja osećanja, kao i kako da se sa njima suoče. Posmatranje čoveka kroz telo, um i dušu je osnov za bilo kakav napredak u zdravlju i bez tog pristupa teško se može otkriti i rešiti problem.

U Grčkoj, 2018. godine, istraživači *Gerogianni*, *Kouzoupis* i *Grapsa*, su došli do rezultata koji su pokazali da se depresija često javlja i u sklopu nekih drugih bolesti i da je zato važno imati holistički pristup u nezi obolelih lica (9). Kada se osoba posmatra kao celina, primećuju se sve pojedinosti u funkcionisanju njegovog tela koje bi mogle da izazovu depresiju. Depresija se često javlja kod pacijenta na hemodijalizi. Pošto postoji narušen telesni aspekt, često dolazi i do narušavanja duševnog i psihičkog, te je od velikog značaja da se u nezi obezbedi holistički pristup. Utvrđeno je da su i drugi činioci, kao što su pothranjenost, kognitivna disfunkcija, bol, poremećaji spavanja, seksualna disfunkcija i nezaposlenost, značajni faktori rizika za razvoj depresije. To znači da se depresija može javiti u sklopu mnogih oboljenja i da je od izuzetne važnosti da medicinske sestre holistički pristupe pacijentu u cilju zbrinavanja i otklone ili ublaže probleme koji su se javili kao posledica bolesti.

implies the following: achieving physical, mental, emotional, social and spiritual health at the same time; lifestyle is changed towards healthy lifestyles; implementation of natural therapy; encouraging patients to participate actively in solving their health problems through making decisions about treatment, etc. (4,5). Also, a holistic approach implies the constant improvement of knowledge through various types of educational programs, training for self-help, striving for and changes of lifestyle that promote better health, such as healthy eating, physical activity, good sleep, fighting stress and obtaining support related to the disease (4). In contrast to the holistic approach, which is sometimes called integrative medicine or the whole person health, conventional medicine focuses primarily on the physical symptoms of a disease, often not taking into account other dimensions of health.

A holistic approach also ensures realizing all aspects of human being and reveals the causes of a disease, as well as the ways in which the disease can be treated or problems reduced in order to improve the quality of life. A healthy person can be considered healthy only when his body is in complete well-being and when a complete balance between his body, mind and spirit is established (3). Through a holistic approach, the connection between depression and numerous other diseases is found, which confirms the complexity of providing health care services to these patients. The backbone of contemporary nursing is represented by a holistic approach to health care (6). This approach requires high expertise, the ability to assess the patient's overall health condition, and a wide range of health care skills which are implemented with the aim of solving and reducing the patient's current health problems and preventing the possible ones (7). A nurse should have understanding, patience, empathy, discernment and good judgment in order to be able to see the patient's health as a whole in order to give him appropriate care, support and therapy.

Depression causes a disturbance in the human body, spirit and mind, and therefore, it is important to find out in which way is each part of health impaired and how it can be treated. The aim of this review article was to assess the significance of applying the holistic approach in the health care of persons with depression, as well as the significance of nursing activities in the destigmatization of these persons.

Methods

This review article included research published in the English language, which was obtained by searching the PubMed database for the last twenty years, using the following key words: holistic approach, mental health, depression, health care, nurses.

The significance of applying a holistic approach in the health care and treatment of persons with depression

In 2017, a study was conducted in India, aimed at assessing the efficiency of the application of a holistic group health promotion program related to educational status, anxiety and depression (8). The study included 30 girls from Dharwad University in India, who had some form of anxiety and depression. The participants were divided into experimental and control groups, using the randomization method. After three months of the holistic group health promotion program (consisting of eight sessions: the concept of holistic health, understanding one's own stress, identifying stressors, reaction to stress, emotions and well-being, self-love, my growth and my strength, my support and network and self-transformation), a significant improvement was observed among the participants in the experimental group in comparison to the control group. During these three months, the participants learned how to recognize the symptoms of their disease and their feelings, as well as how to face them. Observing a person through body, mind and soul is the basis for any progress related to health, and without this approach, it is difficult to discover and solve the problem.

In 2018, in Greece, researchers Gerogianni, Kouzoupis and Grapsa came to the results which showed that depression often occurs as part of some other diseases and that is why it is important to apply a holistic approach in the care of patients (9). When a person is observed as a whole, all details related to the functioning of his body that could cause depression are noticed. Depression often occurs in patients undergoing hemodialysis. Since the physical aspect is impaired, it often

U Kini je 2018. godine grupa medicinskih sestara sprovela randomizirano kliničko ispitivanje. Studijom je obuhvaćeno 40 kardiohiruških pacijenata u postoperativnom periodu koji su podeljeni u eksperimentalnu i kontrolnu grupu (10). Nakon primene holističkog pristupa, u trajanju od 30 do 45 minuta,uočeno je da se kod kardiohiruških pacijenata, koji su činili eksperimentalnu grupu, smanjuju simptomi depresije, stresa i anksioznosti, u odnosu na kontrolnu grupu (koja je bila bez holističkog pristupa). Takođe se navodi da je primena holističkog pristupa jednostavna i da se može primeniti kao komplementarna terapija za ove pacijente. Holistički pristup pacijentima je od velikog značaja, jer utiče na poboljšanje zdravstvenog stanja i pomaže bržem lečenju osoba sa depresijom (10).

Sestrinske aktivnosti u destigmatizaciji pacijenata sa depresijom

Rezultati istraživanja koje su sprovele medicinske sestre u Sjedinjenim Američkim Državama, 2009. godine su ukazali da se aktivnosti medicinske sestre u cilju ostvarivanja destigmatizacije realizuju kroz edukaciju (11). Navodi se da medicinske sestre imaju veliki uticaj na javnost i njihov posao se smatra za jedan od najhumanijih poslova, kao i da njihova reč i stav imaju određenu težinu. Zadaci u destigmatizaciji obuhvataju edukaciju samog obolelog, a zatim porodice i zajednice, kako bi se obolelom unapredio kvalitet života i kako bi se lakše adaptirao na život u zajednici.

Interesantno je istraživanje sprovedeno od strane Kolb i saradnika, objavljeno 2022. godine, koje je pokazalo da osnovi stigma leže u neznanju, predrasudama i lošem ponašanju (diskriminaciji), kao i da medicinske sestre u Sjedinjenim Američkim Državama koje rade u ustanovama za mentalno zdravlje, u poređenju sa medicinskim/hirurškim sestrama, imaju niži nivo stigma prema svojim pacijentima i više znanja (12). Prediktori stigma i znanja su bili specijalnost medicinske sestre, kao i lični kontakt sa metalnim poremećajem (bili lično iskustvo ili iskustvo bliskog prijatelja, člana porodice, dr.).

U Ujedinjenom Kraljevstvu, 2012. godine, rezultati studije sprovedene od strane medicinskih sestara, pokazali su da se aktivnosti zdravstvene nege odnose na edukaciju stanovništva i da je ponašanje i stav medicinskih sestara u radu sa pacijentima od velikog uticaja na pacijente (13). Istaknuto je da medicinske sestre prilikom rada sa pacijentima sa problemima u mentalnom zdravlju ne smeju imati predrasude o njima, jer sam njihov stav i ponašanje utiče na obolele. Aktivnosti medicinske sestre se baziraju na suočavanju ljudi sa pravim činjenicama o depresiji i na uklanjanju predrasuda. Medicinske sestre ne mogu da preokrenu socijalni fenomen stigme kada su u pitanju osobe sa depresijom, ali mogu da učestvuju u kampanjama za izmenu zakona o mentalnom zdravlju koje će pružiti obolelima bolju poziciju u društvu nego što je to sad. To znači da medicinske sestre treba da budu aktivne učesnice na raznim skupovima i kampanjama i da sarađuju sa brojnim stručnjacima, kako bi efikasno radile na smanjivanju stigmatizacije. Takođe, medicinske sestre mogu smanjiti stigmu pomoću raznih pomagala, kao što su agitke ili radionice, koje će na zanimljiv način upoznati ljude sa depresijom i pokazati im da se sa depesijom može raditi i ostvariti kvalitetan život.

Grupa medicinskih sestara je sprovela studiju u Turskoj, 2019. godine, da bi se ispitalo prisustvo stigme kod studenata (14). Njihov negativan stav prema osobama sa mentalnim poremećajima je smanjen nakon učestvovanja u programu destigmatizacije. Program destigmatizacije je podrazumevao pored edukacije od strane medicinskih sestara i razgovor sa osobama sa mentalnim poremećajima. Takođe, svoje znanje o destigmatizaciji sticali su kroz različite edukativne filmove. Neophodno je da medicinske sestre, u cilju realizacije destigmatizacije, edukuju mlade da bi izgradili pozitivno mišljenje o osobama sa mentalnim poremećajima.

Studija sprovedena u Ujedinjenom Kraljevstvu, 2019. godine, imala je za cilj da ispita kako lekari i medicinske sestre posmatraju pacijente sa problemima u mentalnom zdravlju i kako se može smanjiti stigmatizacija (15). Rezultati studije pokazuju da je stigma kod zdravstvenih radnika prisutna i da je problem u nedovoljnom broju edukativnih programa. Aktivnosti medicinske sestre treba da budu usmerene na kontinuiranu edukaciju zdravstvenih radnika.

U Sjedinjenim Američkim Državama, 2021. godine, sprovedeno je istraživanje koje je za cilj imalo ispiivanje sestrinske aktivnosti u destigmatizaciji post-porođajne depresije (16). Na osnovu rezultata istraživanja zaključeno je da aktivnosti medicinske sestre treba da budu bazirane na edukaciji trudnica, obolelih od depresije i celokupnog

causes the impairment of mental and psychological aspects, and therefore, it is of great importance to ensure a holistic approach in care. It has been found that other factors, such as malnutrition, cognitive dysfunction, pain, sleep disorders, sexual dysfunction and unemployment are significant risk factors for the development of depression. It means that depression can occur as part of many diseases and that it is extremely important for nurses to approach the patient in a holistic way in order to treat them, eliminate or alleviate the problems that occurred as a result of the disease.

In 2018, in China, a group of nurses conducted a randomized clinical trial. The study included 40 cardiac surgery patients in the postoperative period, who were divided into experimental and control groups (10). After the application of the holistic approach, which lasted 30 to 45 minutes, it was observed that in cardiac surgery patients, who belonged to the experimental group, the symptoms of depression, stress and anxiety were reduced in comparison to the control group (without the holistic approach). It was also stated that the implementation of the holistic approach was simple and could be used as a complementary therapy for these patients. A holistic approach to patients is of great significance because it affects the improvement of the health condition and helps to treat persons with depression faster (10).

Nursing activities in destigmatization of patients with depression

The results of a study, which was conducted by nurses in the United States of America in 2019, indicated that nurses' activities aimed at achieving destigmatization were realized through education (11). It was stated that nurses had a great influence on the public and that their work was considered one of the most humane jobs, and that their word and attitude had weight. Tasks in destigmatization include educating the patient himself, and then the family and community in order to improve the patient's quality of life and to make it easier for him to adapt to life in the community.

An interesting study conducted by Kolb et al., published in 2022, showed that the basis of stigma lies in ignorance, prejudice and bad behavior (discrimination), and that nurses in the United States who work in mental health facilities have a lower level of stigma towards their patients and more knowledge, than medical/surgical nurses (12). The predictors of stigma and knowledge were the specialty of the nurse, as well as personal contact with a metal disorder (either personal experience or the experience of a close friend, family member, etc.).

In 2012, in the United Kingdom, the results of one study, which was conducted by nurses, showed that health care activities were related to the education of population and that the behavior and attitude of nurses in working with patients had a great impact on patients (13). It was emphasized that nurses, while working with patients with mental health problems, might not exhibit stigmatizing attitudes towards them, because their attitude and behavior affect the patients. Nursing activities are based on helping people face the real facts about depression and on removing the prejudice. Nurses cannot reverse the phenomenon of stigma related to people with depression, but they can participate in campaigns to change laws on mental health, which will give patients a better position in society than they have now. This means that nurses should be active participants in various gatherings and campaigns and cooperate with numerous professionals, in order to effectively work on reducing the stigmatization. Also, nurses can reduce stigma with the help of various interventions, such as leaflets or workshops, which would inform people about depression in an interesting way and show them that it is possible to live and work with depression.

A group of nurses conducted a study in Turkey in 2019 in order to investigate the presence of stigma among students (14). Their negative attitude towards people with mental disorders was reduced after they had participated in the program of destigmatization. The destigmatization program included, in addition to educational program conducted by nurses, talking to people with mental disorders. Also, they acquired their knowledge about destigmatization through various educational films. It is necessary for nurses, in order to achieve destigmatization, to educate young people so that they would build a positive opinion about persons with mental disorders.

A study, which was conducted in the United Kingdom in 2019, whose aim was to examine how doctors and nurses viewed persons with mental health problems and how stigmatization could be

stanovništva. Neophodno je da svi budu upoznati da lica sa depresijom mogu normalno da žive i rade i da to nije razlog za izolovanost. Ovim istraživanjem, takođe se potvrđuje da je edukacija od strane medicinskih sestara neophodna kako bi se smanjila stigmatizacija lica sa depresijom.

Predlog mera aktivnosti medicinskih sestara

Depresija je poremećaj koji predstavlja jedan od vodećih problema u svetu. Svojim delovanjem utiče na život bolesnika i pogađa svaku sferu njegovog bića. Pored toga što se može javiti kao primarno oboljenje, depresija se često javlja u sklopu drugih bolesti što značajno uvećava problem obolele osobe, ali isto tako predstavlja i veliki problem od javno zdravstvenog značaja. Medicinske sestre, kao najbrojniji kadar u sistemu zdravstvene zaštite, imaju izuzetno značajan doprinos u ranom prepoznavanju, lečenju, zdravstvenoj nezi i socijalnoj rehabilitaciji ovih lica. One svoje aktivnosti treba da usmeravaju na: primenu holističkog pristupa u nezi i lečenju osoba sa depresijom; prihvatanje dokumentacije procesa zdravstvene nege kao standardne metode u sestrinskom radu koja omogućava potpunu implementaciju holističkog pristupa u zdravstvenoj nezi; sprovođenje istraživanja u ovoj oblasti kroz dokumentaciju procesa zdravstvene nege u cilju upoznavanja stručne javnosti o značaju primene holističkog pristupa u profesionalnom radu medicinskih sestara; edukaciju mlađih koleginica o načinima komunikacije sa licima sa mentalnim smetnjama, kako bi na adekvatan način prenele informacije i dale doprinos u smanjenju stigme; destigmatizaciju osoba sa depresijom i razvijanje pozitivnog stava prema licima sa mentalnim smetnjama kroz sva tri nivoa zdravstvene zaštite (primarnom, sekundarnom i tercijarnom); promociju mentalnog zdravlja kroz multisektorsku saradnju i učešće u raznim kampanjama koje su usmerene na smanjenje i otklanjanje negativnih predrasuda.

Zaključak

Holistički pristup je osnovni sestrinski pristup i od njegove primene u velikoj meri zavisi uspeh u lečenju i zdravstvenoj nezi. Važno je da se čovek posmatra u celini i da se zbrine ne samo na telesnom, već i na duševnom i psihičkom nivou. Kroz holistički pristup pronalazi se veza depresije sa brojnim drugim oboljenjima, što ukazuje na moguću kompleksnost u pružanju zdravstvenih usluga ovim pacijentima.

Aktivnosti medicinske sestre u destigmatizaciji bolesnika sa depresijom realizuju se kroz edukaciji stanovništva i određenih lako dostupnih ciljnih grupa (mladi, trudnice, itd.). Medicinske sestre treba da upoznaju osobe sa depresijom kako da žive sa bolešću u cilju poboljšanja kvaliteta života, ali isto tako treba da edukuju porodicu i okruženje da ovim osobama pruže podršku, a posebno da odbace loše predrasude o licima sa depresijom.

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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reduced (15). The results of the study showed that stigma was present among healthcare workers and that the problem was the insufficient number of educational programs. Nursing activities should focus on the continuous education of healthcare workers.

In 2021, a study was conducted in the United States of America, whose aim was to examine nursing activities in the destigmatization of postpartum depression (16). Based on the research results, it was concluded that nurses' activities should be based on educating pregnant women, patients affected by depression and the whole population. It is necessary for everyone to be aware that persons with depression can live and work normally and that this is not a reason for isolation. This study also confirmed that education conducted by nurses is necessary to reduce stigmatization of people with depression.

Proposed measures of nurses' activities

Depression is a condition that is one of the leading problems in the world. It affects the patient's life and every sphere of his being. In addition to the fact that it occurs as a primary disease, depression often occurs as part of other diseases, which significantly increases the problem of the affected person, but also represents a major problem of public health importance. Nurses, as the most numerous personnel in the health care system, make an extremely significant contribution to the early recognition, treatment, health care and social rehabilitation of these persons. They should focus their activities on: applying the holistic approach to care and treatment of persons with depression; accepting the documenting of the health care process as a standard method in nursing work that enables the full implementation of a holistic approach in health care; conducting research in this field by documenting the health care process aimed at informing the professional public about the importance of applying the holistic approach in the professional nurses' work; educating younger colleagues about the ways of communication with persons with mental health disorders, in order to convey information in an adequate way and contribute to reducing stigma; destigmatizing persons with depression and developing a positive attitude towards persons with mental health disorders through all three levels of health care (primary, secondary and tertiary); promoting mental health through multisector collaborations and participation in various campaigns that are aimed at reducing and removing the negative prejudice.

Conclusion

A holistic approach is a basic nursing approach and the success of treatment and health care largely depend on its application. It is important to observe a person as a whole and to provide care not only at the physical level, but also at the mental and psychological level. Through a holistic approach, the connection between depression and numerous other diseases is found, which indicates the possible complexity in the provision of health services to these patients.

Nurses' activities in destigmatizing patients with depression are realized through education of the population and certain easily accessible target groups (young people, pregnant women, etc.). Nurses should inform people about depression, how to live with the disease in order to improve the quality of life, but they should also educate the family and the environment to provide support to these people, and especially to reject the bad prejudice about people with depression.

Competing interests

The author declared no competing interests.

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The manuscript should be written briefly and clearly and abbreviations used only for very long names and for names known as abbreviations (eg AIDS, HIV, etc.).

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Methods
In this section, the authors describe how the study was conducted, explain the choice of methods and design of the research. The sub-sections of the methods may be: study design (eg quantitative or qualitative research, descriptive or analytical or experimental study, etc.), choice of respondents (inclusion and exclusion criteria from the study), ethical aspects (the number under which the study was approved by the ethics committee), research instruments (method of data collection, specificity of instruments used), and statistical analysis of the data (types of tests). It is important to provide literature data for known methods, including statistical methods.

The results
Describe the results of the research presented in a logical order through tables, charts and illustrations (appendices are cited after the Literature).

Discussion
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