

Volume 4 / Number 1 / 2016

ISSN 2303-4092

Balkan Journal of Health Science

Volume 4 / Number 1 / 2016

Balkan Journal of Health Science

Editorial board

Editor-in-chief

prof. dr Mensura Kudumovic

Technical Editor & Cover Design

B. Sc. Eldin Huremovic

Members

Prof. dr Zmago Turk (Slovenia),

Prof. dr Budimka Novakovic (Serbia),

Prof. dr Camil Sukic (Serbia),

Prof. dr Bekim Fetaji (Macedonia),

Prof. dr Aleksandar Dzakula (Croatia),

Prof. dr Jayanthi Repalli (USA)

Prof. dr Dzenana Gaco (Bosnia and Herzegovina),

Prof. dr Gordana Manic (Bosnia and Herzegovina).

Address:

Sarajevo,

Bolnicka bb,

Bosnia and Herzegovina

E-mail: balkanjournal@yahoo.com

Web page: <http://www.drunpp.ba/bjhs.html>

Published by DRUNPP, Sarajevo

Volume 4 Number 1, 2016

ISSN 2303-4092

Balkan Journal of Health Science is covered or selected for coverage in the following:



SJIF Scientific Journal Impact Factor



Sadržaj / Table of Contents

The impact of unhealthy habits - smoking and alcohol consumption on the malignancy of prostate cancer-Gleason's score	3
<i>Secic Damir, Mulic Arijana, Kulovac Benjamin, Omerbasic Ago, Hiros Mustafa, Eminagic Djenana, Sporisevic Lutvo</i>	
Organizacija pružanja usluga zdravstvene zaštite kao varijable u funkciji ispitivanja zadovoljstva korisnika zdravstvenih usluga porodične/ obiteljske medicine	8
<i>Azra Kudumović, Sabina Zukić</i>	
Net retreat of the middle blocker for counterattack in volleyball	13
<i>Rui Pinto, Susana Vale, Paulo Vicente Joao</i>	
The effect of smoking, dyslipidemia and arterial hypertension on cardiovascular and cerebrovascular diseases by patients with diabetes mellitus	19
<i>Sabina Zukic, Olivera Batic Mujanovic, Suljo Kunic, Azra Kudumovic</i>	
Medicinska dokumentacija u BiH	29
<i>Kamal Bashir, Omer Shakour</i>	
Instructions for the authors.....	30

The impact of unhealthy habits - smoking and alcohol consumption on the malignancy of prostate cancer-Gleason's score

Secic Damir^{1*}, Mulic Arijana², Kulovac Benjamin³, Omerbasic Ago⁴, Hiros Mustafa³, Eminagic Djenana⁵, Sporisevic Lutvo⁶

¹ Department of Pathophysiology, Medical Faculty University of Sarajevo, Sarajevo, Bosnia and Herzegovina,

² Department of Emergency Medicine of Podgorica, Unit Bijelo Polje, Montenegro,

³ Clinic of Urology, University Clinical Centre Sarajevo, Sarajevo, Bosnia and Herzegovina,

⁴ Department of Biophysics and Medical Physics, Medical Faculty University of Sarajevo, Sarajevo, Bosnia and Herzegovina,

⁵ Clinic of Oncology, University Clinical Centre Sarajevo, Sarajevo, Bosnia and Herzegovina,

⁶ Public Institution Health Centre of Sarajevo Canton, Sarajevo, Bosnia and Herzegovina.

Abstract

Introduction: The impact of benign prostatic hyperplasia, obesity, diet, smoking, sexually transmitted diseases, prostatitis, physical activity, alcohol consumption is not definitely proven. The goal is to prove that variable risk factors as alcohol and smoking, affecting the degree of malignancy of prostate cancer and Gleason's score.

Methods: The sample consists of 81 outpatient oncology patients at the Counseling Center of University Clinical Center in the period March-April 2014 with histologically verified prostate cancer. Exclusion criteria were metastatic prostate cancer and psychiatric patients. This is a cross-sectional study and include exposure to risk factors in the period 10 years before diagnosis.

Results: The majority of patients with prostate cancer was in the age group of 60-75 years, 48% of them. Alcohol consumption and passive smoking were present in 67% and 82% of patients. Increased alcohol consumption was higher than in the general population with statistical significance of $p<0.001$. A significant amount of stress was present in 57% of patients. Respondents who have positive variables related to alcohol and smoking have a higher value of Gleason's score with the standard regression coefficient of 0.581.

Conclusion: The value of Gleason's score was significantly higher in patients who smoke and drink alcohol than those who only smoke. Gleason's score was significantly higher in patients with a genetic predisposition to develop the dis-

ease and passive smokers than in subjects who does not have one of these two factors.

Keywords: prostate cancer, Gleason score, smoking, alcohol consumption

Introduction

Prostate cancer is the most common malignancy of the male population and the second most frequent cause of death, after lung cancer. The exact risk factors for etiopathogenesis of prostate cancer are not yet sufficiently tested and proven. For certain we can speak about the impact of age, race and family history on the occurrence of cancer (1,2). A hormonal influence, the influence of benign prostatic hyperplasia, obesity, diet, smoking, sexually transmitted diseases, prostatitis, the impact of physical activity, alcohol consumption does not have reliable clinical evidence, although today many studies and publications dealing with these topics (1-5).

According to the International Agency for Research on Cancer, the estimated incidence of prostate cancer in 2012 in the Federation of Bosnia and Herzegovina was 689 (rate of 32.7/100,000), and mortality 336 (rate of 15.1/100 000) (6). The highest incidence of prostate cancer is among African Americans 150, with a rate of 224/100,000, then Caucasian Americans and Western Europeans with 40 and Asians with 1-8 (4).

Decades of prostate cancer research, resulted in the conclusion that the positive family history is one of the most important risk factors for its occurrence, while since 2006 has been reported

more than 30 hereditary genetic markers associated with prostate cancer (4,7). It is estimated that as much as 42% risk of prostate cancer can be explained by genetic influence, including individual and combined effects of different genes (8,9).

Meta-analysis based on 24 cohort studies on the impact of cigarette smoking on prostate cancer, reveal that current and former smokers have a significant risk, while heavy smokers by as much as 24-30% higher risk than in non-smokers (10). The cited study confirms that smoking at the time of diagnosis was associated with a significantly increased mortality from prostate cancer and its recurrence. Thus, patients who quit smoking ten years, have the risk that is equal to patients who never smoked (11). This study suggests that there are differences in the impact of smoking in relation to race, so results are obtained that among African Americans with heavy smoking status, have increased both the risk for prostate cancer and Gleason score (12).

Alcohol is variable risk factor for prostate cancer and is known to alter the hormonal status, and contain certain chemical substances that can affect the growth of tumor cells (13). Yet its influence opinions and study results are divided. While according to some nor the amount or type of alcohol is associated with an increased risk (14), there are studies that suggest that there is evident increased risk for prostate cancer in alcoholics (15).

A larger number of studies reports a positive relationship between psychological factors such as stress and the incidence of cancer. In vitro, in vivo and clinical studies have shown that stress-related processes are involved in the progression of cancer, by means of regulation of the immune system, angiogenesis and invasion (2,16).

Today for assessment of the tumor malignancy most commonly used is Gleason score. Gleason score is the sum of the two most common samples (1-5), with a range of 2-10, in the histopathological material obtained by biopsy, transurethral resection or after radical surgery.

Often there is the problem of the impact of certain habits on prostate cancer, in our case, unhealthy living habits, smoking and alcohol consumption on the malignancy of prostate cancer.

The goal of this study is to prove that variable risk factors as alcohol and smoking, affect the degree of prostate cancer malignancy and its Gleason score.

Methods

The study included 81 patients with histologically proven prostate cancer, previously hospitalized and then followed as outpatients at the Oncology Counseling Center of the University Clinical Center Sarajevo in the period from March to April 2014 and who gave their informed consent. Inclusion criteria were: older than 40 years, histologically proven carcinoma, complete medical records, patients who are able to clearly understand and respond to the survey questions. Exclusion criteria were: metastatic prostate cancer and psychiatric patients.

This is a cross sectional study of clinical - analytical character. Data was collected through a survey of outpatients, where was examined possible risk factors of prostate cancer, and its impact on the malignancy or higher Gleason score. The questions referred for a period of ten years before diagnosis. The diagnosis of prostate cancer is accompanied with determined Gleason score.

In all patients were monitored following parameters for the relevant statistical analysis: patient age at diagnosis of prostate cancer, family history of prostate cancer (close relatives), alcohol consumption (duration and frequency of consumption), smoking status (number of boxes per day in the last 10 years), exposure to stress (subjective scale: 1-4 - mild, 4-7 - moderate, 7-10 - severe stress), histopathologic findings (Gleason score).

Statistical analysis include regression model created in PASW Statistics 18 software. Procedure of linear regression enter method is used. The dependent variable was the Gleason score. Selection of variables that are included in the initial regression model was made primarily on the basis of theoretical considerations, but also on the basis of an analysis of descriptive statistics. The level of statistical significance was set at $p \leq 0.05$.

Results

The respondents were mostly older than 50 years. The youngest patient was 49 years old and the oldest 88 years.

The largest number of respondents was in the age group 66-75 years (48.0%), which indicates that the prevalence of prostate cancer is highest in that age category. In all patients was confirmed

the presence of some of these risk factors and the percentages are shown in Table 2.

Table 1. Age structure

Age	N	%
49- 60	14	17.3
61 - 65	14	17.3
66 - 70	19	23.4
71 - 75	20	24.7
75 -88	14	17.3
Total	81	100.0

Table 2. The frequency of risk factors

Risk factors	N	%
Carcinoma in family	19/81	23.5
Alcohol consumption	54/81	66.7
Smoking	22/81	27.1
Passive smoking	66/81	81.5
Stress above 5	46/81	56.8

The table shows that alcohol consumption and passive smoking are the most common risk factors in our sample. Very large representation of stress, even in 56.7% of cases. By correlation test, we found no association between age and the presence of risk factors ($r=0.10$). According to statistical data 10-15% of men consumed alcohol. Our results on the test sample shows that the data on frequency of alcohol consumption is present in 66.7% of cases. The difference was statistically significant for the level of $p<0.001$. Smoking is widespread in the population of Bosnia and Herzegovina from 35-40%. On this basis, in our study we have statistically slightly less present smoking in a sample of patients with prostate cancer.

Table 3. Age of respondents and Gleason score

Age	N	Gleason score			
		Min	Max	M	SD
<60	14	6	9	7.43	.85
60 - 65	14	6	10	7.79	1.12
65 - 70	19	4	9	7.11	1.33
70 - 75	20	6	9	7.30	.92
>75	14	6	8	7.07	.62

In 81.5% of the respondents were found to have been exposed to passive smoking, which is highly significant presence of passive smoking in patients with prostate cancer. A significant amount of stress (over 5 per subjective scale) in our study

identified as an important risk factor also with high statistical significance level of $p < 0.001$.

Table 3. shows the parameters of age and Gleason score. It can be seen that in the age group of 60-65 years are patients with the highest level Gleason score, with the mean value 7.79, while in the age group over 75 years are patients with the lowest Gleason's score, with a mean value of 7.07. Correlation test confirmed that there was no significant correlation between age and Gleason score ($r=0.13$).

Of the total number of patients, 55 of them were non-smokers in the 10 years' period before diagnosis, and mean Gleason's score for them is 7.36. The remaining 26 patients were smokers, with a mean Gleason score of 7.23. Analysis of the data show that there is no statistically significant difference at the level of $p < 0.05$.

Of the total number of patients 15 was not exposed to tobacco smoke, and the mean value of Gleason's score for them is 7.53. The remaining 66 patients, was exposed to passive smoking and have a mean Gleason's score of 7.27. Analysis of showed that there is no statistically significant difference at the level of $p < 0.05$.

Table 4. Characteristics of the final regression model

	Regression coefficient (standard error)	Standardized regression coefficient
Constant	7.744 (0.202)	
Smoking**	-1.500 (0.523)	-0.689
Alcohol**	-0.739 (0.263)	-0.343
Alcohol x Smoking**	1.590 (0.581)	0.696
Cancer in family x Passive smoking*	0.563 (0.269)	0.226

In patients who have had a presence both variables alcohol and smoking, the value of Gleason's score was higher (7.36) than for those who only smoke. It is relatively unexpected result according to which smokers who consume alcohol on average for 0.739 lower Gleason's score compared to non-smokers who do not drink alcohol.

The combination of variables "cancer in the family" and "passive smoking" had 17 patients and mean Gleason for them is 7.59. Analysis of the revealed statistical significance in influence of combinations of variables "cancer in the family" and "passive smoking" on Gleason score ($p<0.05$).

Discussion

Prostate cancer is the most common malignant disease in western male population and the second cause of death (3). Similar results were also confirmed by our tests - the highest number of patients with diagnosed prostate cancer was between the age of 66 and 75 years (48.1%), which indicates that the prevalence of prostate cancer is highest in this age group. Alcohol consumption and passive smoking are as well the most common as risk factors in our patients. Our study shows a high incidence of positive family history among first degree relatives, with 19 cases or 23.4% and very high representation and stress, in 56.8% of cases. It was found that there is no correlation between age and the presence of a larger number of risk factors ($r=0.10$).

According to statistical data, 10-15% of men consumed alcohol. Our results on the sample studied vary widely. Our respondents consumed more alcohol than statistical data of general population, and this risk factor is statistically significantly more present among them, which shows that it is of great importance for the development of prostate cancer. Regarding smoking as a risk factor, in our sample it was represented in 32%, which is at the level of representation of smoking in the general population of Bosnia and Herzegovina (6). Passive smoking as a risk factor is however more common in our patients, with the percentage of 81.5%, and its impact on the development of prostate cancer is highly statistically significant.

Stress as a possible risk factor for developing prostate cancer occurs in our sample in 32.1% of cases. Therefore, the stress in our study is identified as a risk factor of high statistical significance. Otherwise, in the population of older patients stress is present in 9-13%, which is significantly less than in our study(6).

It turns out that smoking and alcohol consumption significantly affect the Gleason score. It is very important to note that the effect of alcohol

consumption on the Gleason score significantly depends on whether someone is a smoker or not. In particular, it is obtained that the Gleason score is significantly higher in people who both smoke and drink alcohol than people who only smoke.

It was demonstrated that the Gleason score can significantly be affected by the interaction of variables "cancer in the family" and "passive smoking". In other words, if we observe the patients, Gleason score, on average, is significantly higher for those who at the same time have the genetic predisposition to developing the disease and who are passive smokers, than for those persons who are not having at least one of these two factors. The difference in mean Gleason score for those subgroups is 0.563.

If we take the standardized regression coefficient as a measure of the strength of the obtained effects, we note that the strongest effect was obtained for the interaction of smoking and alcohol use. So, according to our research is obtained statistical significance between the impact of the combination of smoking and alcohol consumption on the level of Gleason score ($p<0.01$).

Published results on the effect of smoking and alcohol are generally in line with these results. Kenfield et al. in its prospective observational study, which included 5,366 patients with histologically proven carcinoma in the period between 1986 and 2006, obtained similar results. According to that study, smoking was associated both with increased mortality from prostate cancer, its relapse, and with the more aggressive form of cancer (11). Results by Murphy et al. pointed out, in addition to racial differences in the effect of smoking, that a high level of smoking significantly affects the Gleason score (12).

Zuccolo et al. reached the conclusion that the PSA level and Gleason score was reduced among alcohol consumers, but the chances for high grade cancer, and the overall risk of the cancer was increased (15). Hiatt and colleagues examined risk factors in a cohort study on a sample of 43,432 respondents in Northern California (USA), and concluded that alcohol has no influence, while smoking one or more packs of cigarettes a day is associated with more frequent incidence of prostate cancer (17). The significance of genetics the impact has already been mentioned, a study by Hasing et al. estimated that a higher risk of prostate cancer, as well as the severity can explain the influence of dif-

ferent genes (8). Kenfield et al. in a study on the impact of passive smoking on prostate cancer stated that the obtained statistical significance between the interaction of variables "cancer in the family" and "passive smoking" on the Gleason score ($p<0.05$), which corresponds to our results (11).

Conclusions

Drinking alcohol, stress, as well as passive smoking are compared with data from the literature, are strongly represented in our patients and significantly influence the development of cancer. For the degree of prostate cancer malignancy, or Gleason score, we confirmed that the value of Gleason score is statistically significantly higher in people who both smoke and drink alcohol than people who only smoke. Gleason score is significantly higher for those who at the same time have the genetic predisposition for developing the disease and who are passive smokers, than for those persons who does not have at least one of these two factors.

References

1. Chan JM, Stampfer MJ, Giovannucci EL. What causes prostate cancer? A brief summary of the epidemiology. *Semin Cancer Biol* 1998; 8(4): 263-73.
2. Leitzmann M, Rohrmann S. Risk factors for the onset of prostatic cancer: age, location, and behavioral correlates. *Clin Epidemiol* 2012; 4(8): 1-11.
3. Key TJ. Nutrition, hormones and prostate cancer risk: results from the European prospective investigation into cancer and nutrition. *Recent Results Cancer Res* 2014; 202: 39-46.
4. Štimac G. Detection of prostate carcinoma on repeat biopsy by the presence of proliferative inflammatory atrophy on initial biopsy (doctoral thesis). University of Zagreb, Medical Faculty; 2010.
5. Bostwick D, Burke H, Djakiew P, Euling S, Shuk-mej H, Landolph J, et al. Human prostate cancer risk factors. *Cancer*. November 2004; 101(10): 2371–490.
6. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JWW, Comber H, et al. Cancer incidence and mortality patterns in Europe: estimates for 40 countries in 2012. *Eur J Cancer* 2013; 49(6): 1374-403.
7. Pomerantz MM, Freedman ML. Genetics of Prostate Cancer Risk. *Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine* 2010; 77(6): 643–54.
8. Hsing AW, Chokkalingam AP. Prostate cancer epidemiology. *Frontiers in bioscience: a journal and virtual library* 2006; 11: 1388-413.
9. Madersbacher S, Alcaraz A, Emberton M, Hammerer P, Ponholzer A, Schröder FH, et al. The influence of family history on prostate cancer risk: implications for clinical management. *BJU International* 2011; 107(5): 716-721.
10. Huncharek M, Haddock K, Reid R, Kupelnick B. Smoking as a Risk Factor for Prostate Cancer: A Meta-Analysis of 24 Prospective Cohort Studies. *Am J Public Health* 2010; 100(4): 693–701.
11. Kenfield SA, Stampfer MJ, Chan JM, Giovannucci E. Smoking and Prostate Cancer Survival and Recurrence. *Journal of the American Medical Association (JAMA)* 2011; 305(24): 2548-55.
12. Murphy AB, Akereyeni F, Nyame YA, Guy MC, Martin IK, Hollowell CM, et al. Smoking and prostate cancer in a multi-ethnic sample. *The Prostate* 2013; 73(14): 1518–28.
13. Schoonen WM, Salinas CA, Kiemeney L, Stanford JL. Alcohol consumption and risk of prostate cancer in middle-aged men. *International Journal of Cancer* 2005; 113(1): 133–40.
14. Albertsen K, Grønbæk M. Does amount or type of alcohol influence the risk of prostate cancer? *The Prostate* 2002; 52(4): 297–304.
15. Zuccolo L, Lewis SJ, Donovan JL, Hamdy FC, Neal DE, Smith GD. Alcohol consumption and PSA-detected prostate cancer risk - A case-control nested in the ProtecT study. *International Journal of Cancer* 2013; 132(9): 2176–85.
16. Lutgendorf SK, Sood AK, Antoni MH. Host Factors and Cancer Progression: Biobehavioral Signaling Pathways and Interventions. *J Clin Oncol.* 2010; 28(26): 4094–99.
17. Hiatt RA, Armstrong MA, Klatsky AL, Sidney S. Alcohol consumption, smoking, and other risk factors and prostate cancer in a large health plan cohort in California (United States). *Cancer Causes Control.* 1994; 5(1): 66.

Corresponding author

Damir Secic,
Department of Pathophysiology,
Medical Faculty University of Sarajevo,
Sarajevo,
Bosnia and Herzegovina,
E-mail: damir.secic@mf.unsa.ba

Organizacija pružanja usluga zdravstvene zaštite kao varijable u funkciji ispitivanja zadovoljstva korisnika zdravstvenih usluga porodične/obiteljske medicine

Azra Kudumović¹, Sabina Zukić¹

¹ Dom zdravlja KS, Sarajevo, Bosna i Hercegovina,

² Dom zdravlja Banovići, Banovići, Bosna i Hercegovina.

Sažetak

Uvod: Na kvalitet zdravstvene zaštite ne utiče samo kvalitet rada pojedinog liječnika ili tima porodične/obiteljske medicine, ili zdravstvene ustanove, već i kvalitet organizacije zdravstvenog sistema u cjelini, pa je zadovoljstvo pacijenta uslugama zdravstvene zaštite rezultat svih tih faktora.

Različita istraživanja su pokazala da postoje razlike u zadovoljstvu korisnika u odnosu na dob, spol i stupanj obrazovanja, mjesto stanovanja, socijalni status i slično.

Neka istraživanja u Bosne i Hercegovine, kao i u zemljema u regionu ukazuju na veće zadovoljstvo pacijenata u reformiranom sistemu primarne zdravstvene zaštite (pzz) u odnosu na raniji sistem pzz.

Cilj: Cilj ovog rada je bio ispitati zadovoljstvo pacijenata i to prema: pristupačnosti, tj udaljenosti, opremljenosti i radnom vremenu ambulante, mogućnosti izbora i komunikaciji ljekara, dužina čekanja na pregled, na osnovu generalnog stava korisnika o radu tima porodične medicine/tima obiteljske medicine (PM/TOM)

Ispitanici i metode: Istraživanje je sprovedeno metodom anketiranja pacijenata na području Kantona Sarajevo u ambulantama porodične medicine tokom 2013 i 2014 godine. Za potrebe ovog istraživanja kreiran je anketni upitnik od 40 pitanja, na osnovu koga je namjenski kreirana i baza podataka za ove potrebe. Prikupljanje podataka vršeno je metodom intervjeta, nakon čega je izvršen unos podataka u kreiranu bazu podataka putem forme za unos podataka urađenoj u softverskom paketu za kreiranje baza podataka Ms access-u. Nakon izvršene pripreme i unosa podataka, izvršena je statistička obrada i analiza podataka, a dobijeni rezultati su prikazani u odgovarajućim tabelama i grafikonima.

Nominalne i ordinalne varijable u istraživanju analizirale su se χ^2 testom.

Rezultati: Rezultati pokazuju da su ispitanici iz perioda 2014 godine zadovoljniji organizacijom ambulante, u odnosu na ispitanike iz ranije godine. Pacijenti su između ostalog zadovoljniji boljim pristupom ambulanti, vremenu čekanja na pregled, komunikacijom osoblja i opremljenosću ambulanti, a prema nekim kriterijima ispitanici pokazuju i značajno nezadovoljstvo

Zaključak: Zadovoljstvo korisnika zdravstvenih usluga porodične/ obiteljske medicine izraženo kroz generalni stav korisnika o radu PM/TOM kao kriterijumu pokazuju čak i značajno nezadovoljstvo (16%)

Ključne riječi: Zadovoljstvo pacijenata, porodična, obiteljska medicina, ambulanta

Uvod

U području primarne zdravstvene zaštite odredena promjena dogodi se skoro svake godine. Cijeli zdravstveni sustav pokušava se prilagoditi postojećoj ekonomskoj i društvenoj situaciji u državi.

Obiteljska medicina je najbrojniji dio primarne zdravstvene zaštite i neizostavan element modernog zdravstvenog sistema. Pitanje kvaliteta i definiranje kvaliteta zdravstvene zaštite, kao i mjerjenje kvaliteta još uvijek predstavlja teorijski i praktični problem Međutim, važno je znati da pacijenti ne razumiju uvijek u potpunosti potrebe zdravstvenog sistema i ne mogu adekvatno procijeniti medicinsku stručnost. (1)

Istraživanja vršena u zemaljama okruženja, kao i istraživanja iz Bosne i Hercegovine navode veće zadovoljstvo pacijenata u reformiranom sus-

tavu primarne zdravstvene zaštite u odnosu na „stari“ način rada. Pacijenti su između ostalog zadovoljniji boljim pristupom ambulanti, vremenu čekanja na pregled, komunikacijom osoblja i čistoćom ambulanti (2,3,4,5,6,7).

Cilj

Cilj ovog rada je bio ispitati zadovoljstvo pacijenata i to prema: pristupačnosti, tj udaljenosti, opremljenosti i radnom vremenu ambulante, mogućnosti izbora i komunikacije ljekara, dužina čekanja na pregled, na osnovu generalnog stava korisnika o radu tima porodične medicine/tima obiteljske medicine (PM/TOM)

Ispitanici i metode

Slika 1. Forma za unos podataka

Istraživanje je sprovedeno metodom anketiranja pacijenata na području Kantona Sarajevo u ambulantama porodične medicine tokom 2013 i 2014 godine. Za potrebe ovog istraživanja kreiran je anketni upitnik od 40 pitanja, na osnovu koga je namjenski kreirana i baza podataka za ove

potrebe. Prikupljanje podataka vršeno je metodom intervjuja, nakon čega je izvršen unos podataka u kreiranu bazu podataka putem forme za unos podataka urađenoj u softverskom paketu za kreiranje baza podataka Ms access-u.

Nakon izvršene pripreme i unosa podataka, izvršena je statistička obrada i analiza podataka, a dobijeni rezultati su prikazani u odgovarajućim tabelama i grafikonima.

Nominalne i ordinalne varijable u istraživanju analizirale su se χ^2 testom

Rezultati

I grupa ispitanici anketirani u 2013 godini, II grupa ispitanika (grafikon 1).

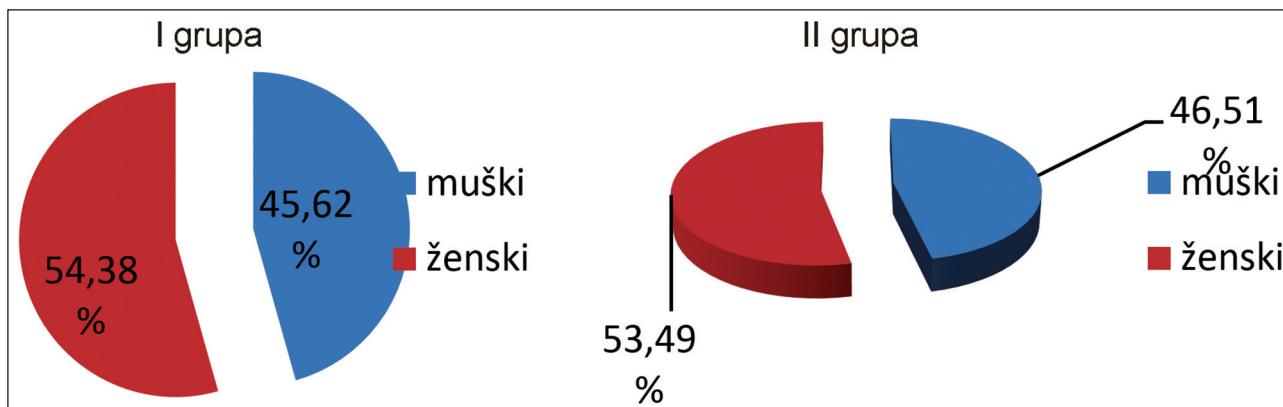
Dob Tabela 1 Dobna struktura ispitanika.

Tabela 1. Dobna struktura ispitanika I grupe

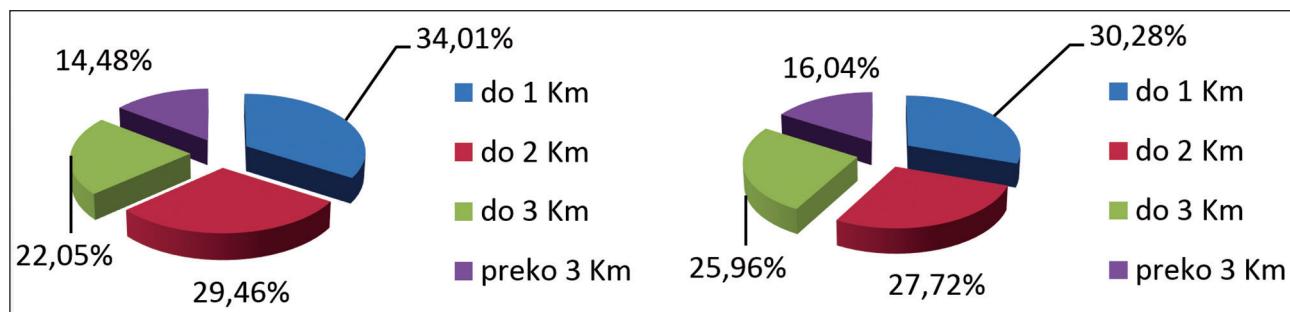
R/B	DOB PACIJ.	Broj
1	Prosj.dob (god)	45
2	Najstariji	87
3	Najmlađi	16
4	STDEV	16,4

Tabela 2. Dobna struktura ispitanika II grupe

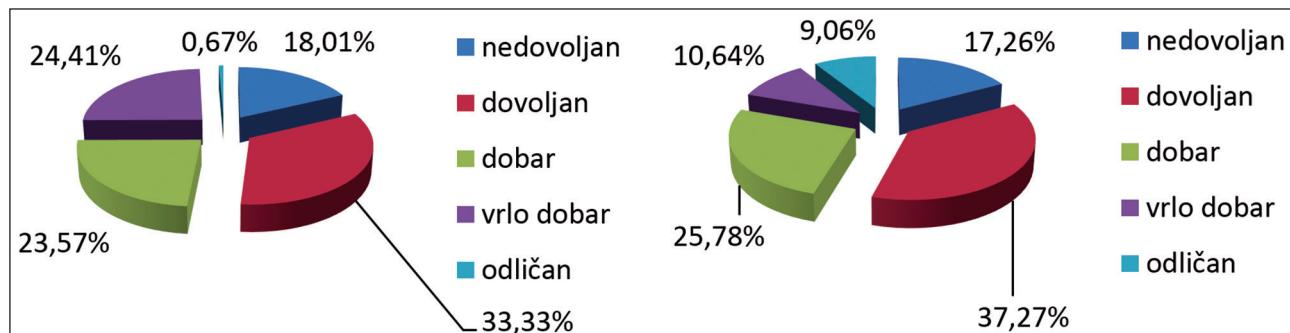
R/B	DOB PACIJ.	Broj
1	Prosj.dob (god)	46
2	Najstariji	87
3	Najmlađi	16
4	STDEV	16,5



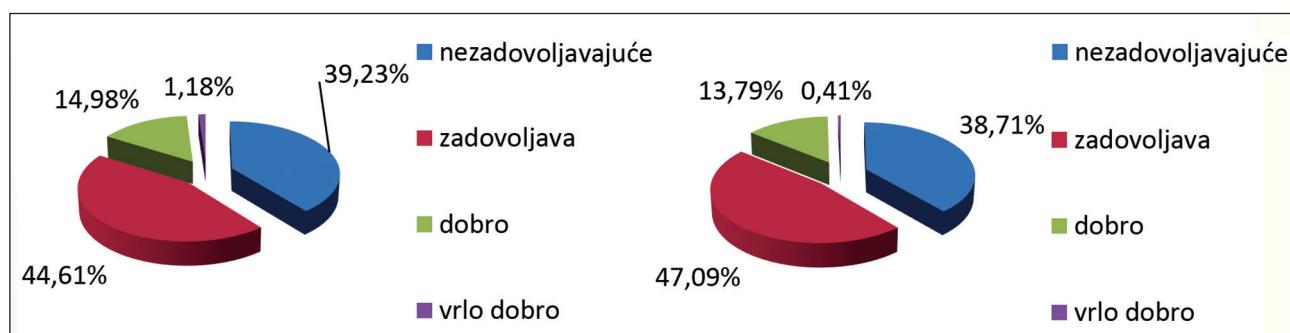
Grafikon 1. Spolna struktura ispitanika I i II grupe



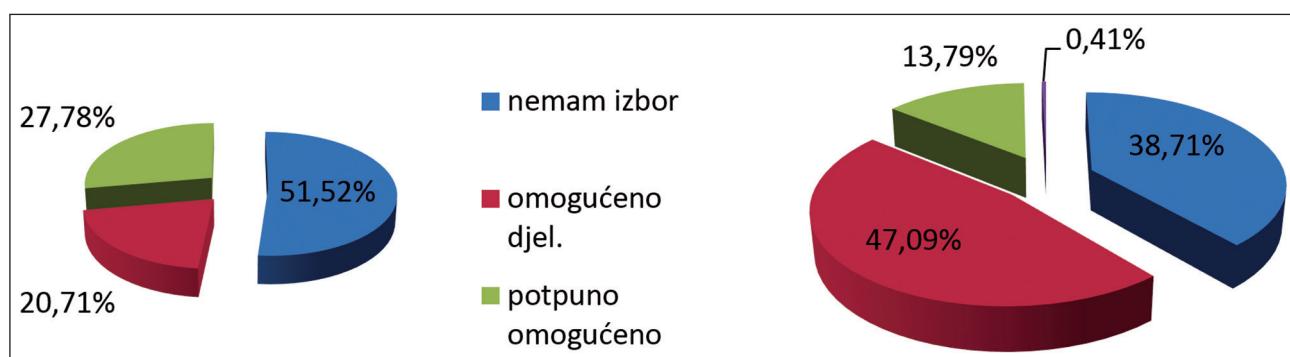
Grafikon 2. Udaljenost od ambulante



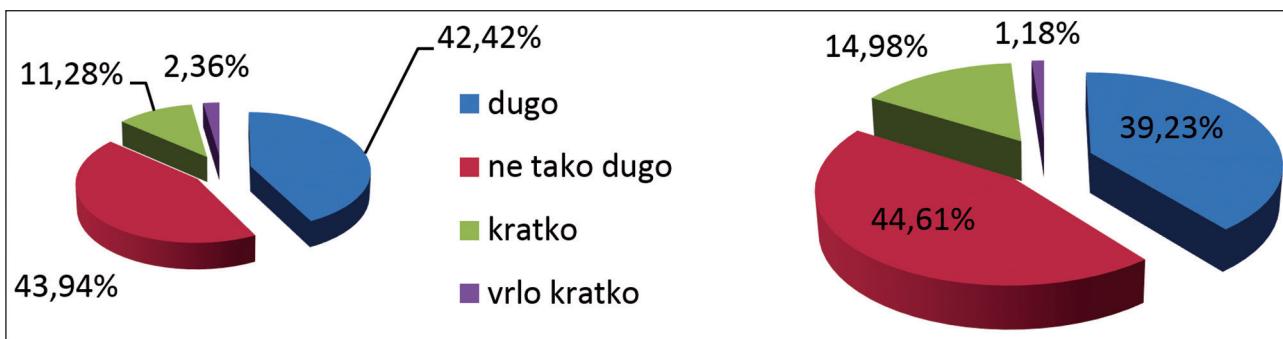
Grafikon 3. Rad PM/TOM u dane vikenda i praznika



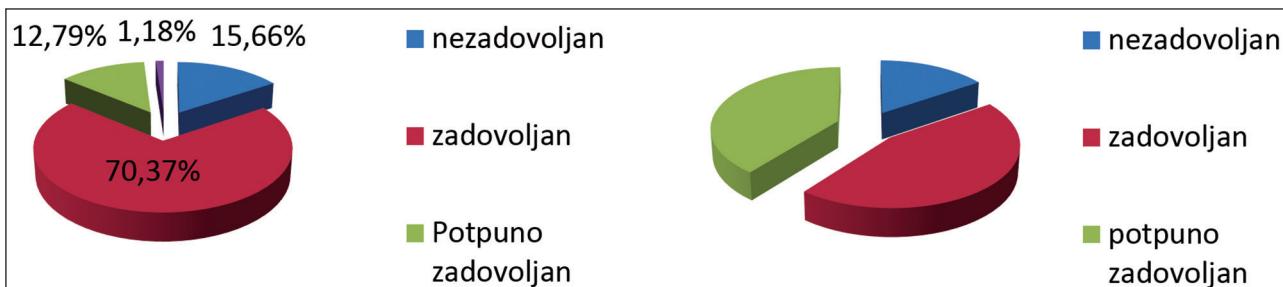
Grafikon 4. Ocjena mogućnosti zakazivanja pregleda



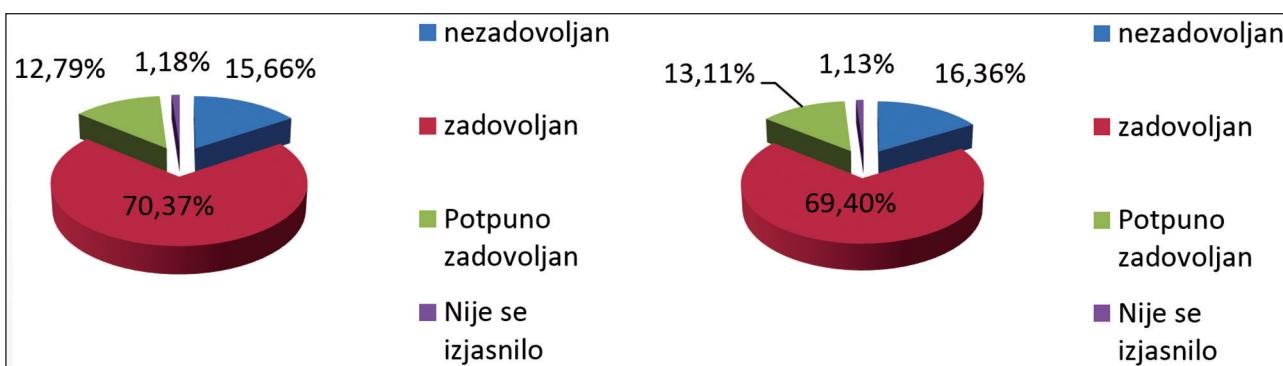
Grafikon 5. Mogucnost izbora ljekara



Grafikon 6. Dužina čekanja na pregled



Grafikon 7. Opremljenost ordinacije



Grafikon 8. Generalni stav korisnika o radu PM/TOM

Nije bilo razlika statistički značajnosti u pogledu spolne i dobne strukture ispitanika.

Rezultati pokazuju da su ispitanici iz perioda 2014 godine nešto zadovoljniji organizacijom ambulantne, u odnosu na ispitanike iz ranije godine. Pacijenti su između ostalog zadovoljniji boljim pristupom ambulantni, vremenu čekanja na pregled, komunikacijom osoblja i opremljenošću ambulantni, a prema nekim kriterijima ispitanici pokazuju i značajno nezadovoljstvo

Zaključak

Zadovoljstvo korisnika zdravstvenih usluga porodične/ obiteljske medicine izraženo kroz generalni stav korisnika o radu PM/TOM kao kriterijumu pokazuju čak i značajno nezadovoljstvo (16,36%)

Literatura

1. Poljičak E. *Procjena kvalitete primarne zdravstvene zaštite iz perspektive liječnika i njihovih pacijenata*, diplomski rad, Zadar; 2014.
2. Strategija za razvoj primarne zdravstvene zaštite. Federacija Bosne i Hercegovine, Federalno ministarstvo zdravstva; Sarajevo; 2005.
3. Huseinagić S, Hrabač B, Bodnaruk S. Ugovaranje u porodičnoj medicini. Kantonalni zavod za javno zdravstvo Zenica. Zenica, 2010: 94-7.
4. Zdravstveno stanje stanovništva i zdravstvena zaštita u Federaciji Bosne i Hercegovine. 2008. Sarajevo: Zavod za javno zdravstvo FBIH, 2009; 27-31.
5. Ljaljević A, Matijević S, Terzić N, Andelić J, Mugoša B. Zadovoljstvo korisnika uslugama u reformiranom sustavu primarne zdravstvene zaštite u Crnoj Gori. Hrvatski časopis za javno zdravstvo. 2009; 5: 56-9.
6. Zukić S, Kudumović A. Analysis of examination of patients with DiabetesMellitus in the team 50 ECPM Health Centre Tuzla, Vox Scientiae PHARM-HEALTH, 2(2); 2014: 100-101.
7. Hadžić N, Kudumovic A. Drugs among adolescents on the area of Sarajevo. Healthmed 09/2007; 1(3): 108-113.

Corresponding Author

Azra Kudumovic,
Health Center Sarajevo,
Sarajevo,
Bosnia and Herzegovina,
E-mail: azrakudumovic@yahoo.com

Net retreat of the middle blocker for counterattack in volleyball

Rui Pinto¹, Susana Vale², Paulo Vicente Joao³

¹ University of Tras-os-Montes e Alto Douro at Vila Real, Portugal,

² Teacher School Education on Polytechnic of Porto, Portugal,

³ Research Center for Sport Sciences, Health and Human Development (CIDESD), Portugal.

Abstract

In modern volleyball, the middle blocker is considered one of the most important players for the offensive organization of the teams. The block is the technic procedure that differentiates the top team's level.

The purpose of this study is to understand and compare the movements that can be executed by this player when the pulls of the net for performing his counterattack.

We have analyzed the retreat movements that each middle blocker executed after the opposing attack. We have also recorded the situations where the middle blocker jumped for becoming an option in a counterattack, where the setter opted to play with the middle blocker and the outcome of the attacks performed. The sample consisted of n=1380 actions representing footages of 30 games from the 1st male volleyball division in the Portuguese competition on season 2013/2014.

The chi-squared test analysis (χ^2) allowed us to establish a relationship between the several retreat movements executed and the consequence of the movement ($p \leq 0.001$). We have also noticed a relationship between the movements performed and the fact that the setter played with the middle blocker ($p \leq 0.001$). Finally, we have established a relationship between the movements and the outcome of the attack ($p \leq 0.001$). Thus, we have determined that the most frequent movements are perpendicular to the net, but those that allowed the middle blocker to score more points were the retreat movements facing the net.

Key Terms: movement, counterattack, middle blocker, volleyball.

1. Introduction

The several studies performed through the years have fostered an evolution in volleyball, both in Portugal (Garganta, 2001; Marcelino & Mesquita, 2007) and in foreign countries (Neto, 2004; Trajković et al., 2011; Marcelino et al., 2014). A good example of this evolution is the appearance of the following specific positions: middle blocker, outside hitter, opposite hitter (setter and opposite spiker) and libero (Batista et al., 2010; Matias & Greco, 2011; Silva, Lacerda & João, 2014).

The technical component, and specifically the potential gestures that allow for the point scoring, has three technical procedures: spike, block and service (Junior, 2013; Silva, Lacerda & João, 2014), also called *terminal actions*. In the view of Marcelino, Mesquita and Afonso (2008), after the spike, the block is the most successful action for scoring points.

We know that the middle blocker is a player that must be constantly jumping, both in the attack action (trying to put the opposing middle blocker in a situation where he has to decide where to perform the block), and in the block action. In the last case, his direct opponent is not called to the attack by his setter, which causes the middle blocker to try to perform the block over the attacker that had been called by the opposing setter (Love, 2008).

A study conducted by Maciel et al. (2009) has established that, among all the attackers (middle blockers, outside hitters, setters and opposite spikers), the central blocker is the one with the shortest reaction time. He is also the one who promotes attacks with lower and faster plays.

These actions depend on the efficiency level of the 1st and the 2nd tip because, the greater the efficiency, the greater is the difficulty posed to the blockers of the opposing team (Palao, Santos

& Ureña, 2004; Papadimitriou et al., 2004). The number of middle blockers intercepting the opposing attack is related to the speed of the latter. Usually, the faster the attack, the less blockers execute the block (Castro & Mesquita, 2008), which implies that the blockers, especially the middle blockers, have to anticipate their actions in order to prevent the so-called fast attacks (Afonso et al., 2010; Afonso & Mesquita, 2011).

Therefore, we believe it is important to understand what is the type of movement executed by the middle blocker for retreating the net, for subsequently beginning a counterattack. A study by Almeida et al. (2010) emphasizes three possible movements for net retreat. One of them is the retreat facing the defenders, with the preoccupation of following the ball but the possibility of losing visual contact with the setter and the opposing players. Other movement is the perpendicular retreat from the net with an attempt to maintain the visual contact with the ball/setter/opposing team, and finally, the last movement is the retreat facing the net, keeping the contact with the setter and the opposing team but taking the chance of losing the contact with the ball. However, the analysis conducted by these authors was only performed regarding the latest situation and in informal context, so it holds little relevance for our study.

It is important to point out the lack of studies on this sport with the purpose of understanding the features of the movements adopted in this specific type of situation concerning the middle blocker.

2. Methodology

Sample

The sample is made up of 1380 actions performed by middle blockers in the block action, coming from the 105 sets corresponding to 30 games of the national league of the 1st Portuguese male division - season 2013/2014. We have chosen games in which at least one of the teams was in the top 6 of the final score of the season.

Reliability of the observation

In order to check for the consistency of the observation, we have verified the percentage of intra-observer and inter-observer agreements (both observations occurred with a gap over 15 days). We have

observed 276 actions (20% of the total sample), a value above the minimum of 10% accepted by the literature (Tabachnick & Fidell, 2007). The results obtained have shown percentages of agreements above the minimum values indicated, that is, 80% (Maroco & Garcia-Marques, 2006). The minimum value obtained was 95.8% in the variable "type of attack" (inter-observer reliability) and the maximum value was 100% in the variables "attack effect" (inter-observer), "attack zone" and "situational opposition of the block" (intra and inter-observer). In order to exclude the possibility of random agreements, we have applied the Cohen's kappa coefficient. The recorded values stood between 0.96 and 1 in terms of intra-observer reliability and between 0.94 and 1 in the inter-observer reliability, well above the reference values considered high by the literature (0.75) (Fleiss, Levin & Cho Paik, 2003). The values obtained in both procedures, have proven their reliability for use as a scientific measurement.

Instruments and Variables

In order to objectively and precisely analyze the movements that precede the technical procedure of the block, we have used the *Kinovea* software.

For a clear framework of the movements used by middle blockers, we have considered the following variables:

- Type of retreat movement: - Facing the defenders (FD), facing the net (FN) or perpendicular to the net (PN);
- Consequence of the movement: Jumps to perform the attack or does not jump to perform the attack;
- Setter's decision: Plays with the middle attacker or does not play with the middle blocker;
- Result of the attack: Scores a point, continued play or error.

Procedures

We have established an initial contact with the teams' coaches via e-mail, requesting authorization for recording the games of their teams. After obtaining the authorization from all coaches, we have obtained access to the footage from each round via *Dropbox*, which gave us access to images of formal game context. The cameras were

placed in the most central point at the bottom of the game field, parallel to the net line, for recording images of all the motion of the middle blockers in the game near the net.

The footage was recorded in .avi files. The files were exported to *Kinovea* software, available at <http://www.kinovea.org/fr/>, for tagging and checking the trajectory covered by fixed points in the lower limbs. We have also used *Microsoft Excel* 2010 to create the record sheets of each game and to transfer data to the statistics software IBM® SPSS® version 21 for analyzing the variables. This study respected the ethical and methodological procedures aimed at keeping the privacy of athletes, coaches and teams, but simultaneously revealing all the moments relevant for the creation of this study.

Statistical analysis

The sample was characterized and described using descriptive statistics. A chi-square test was used to determine differences between the back movement, the consequence of back movement, the setter's decision and the result of the attack. All the statistical analysis was performed using SPSS 21.0 for Windows. Statistical significance was set at $p<0.05$.

3. Results

The frequency values of each movement are represented in table 1. The data show that in the 1380 studied actions, the PN exit was the most frequently used movement with a total of 577 movements recorded, while the FD exit was the less frequently used movement with just 394 movements recorder. The second most frequently used movement was the FN exit with a total of 409 movements recorded.

Table 1. Net retreat

	Frequency	Percent %
FN	409	29,6
FD	394	28,6
PN	577	41,8
Total	1380	100,0

FN – Facing the net; FD – Facing the defenders; PN – Perpendicular to the net

In table 2, it is possible to observe the consequence of the movements. In the 1380 plays stud-

ied, the middle blocker executes the retreat movement in 41.8% of the total sample through the PN movement (577 movements). However, he is only an option in 808 counterattack plays (58.6%). Within this sub-variable, the most productive movement was the FN (78.4% of the total exits), while the PN exit allowed for only 57.4% of the counterattack plays.

The FD movement occurred in only 28.6% of the total sample and allowed the middle blocker to be an option for the counterattack in only 43.4% of the total retreats performed in this manner.

The chi-square analysis (χ^2) has demonstrated that there is a statistically significant relationship between the two variables ($\chi^2=82.184$; $p=0.00$).

Afterwards, we have analyzed the relationship between the several net retreat movements, the consequence of these very same movements, and the decisions made by the setter. It is possible to conclude that in 808 of the studied players, the setter chose to play in counterattack with the middle blocker in only 376 actions (46.5%). When the setter *Plays with the Middle Blocker*, it is possible to verify that the net retreat movement that has created more attacks for the player was the PN (49.5%). On the other hand, the movement that has created fewer attacks was the FN (43.5%). However, by individually analyzing each movement, with the consequence *Jumps to perform the attack* and the setter's decision *Plays with the Middle Blocker*, it is possible to conclude that the percent values of the three net retreats are quite close (43.5%, 46.2% e 49.5% respectively).

In addition, the chi-square analysis (χ^2) has demonstrated that there is a statistically significant relationship between the two variables ($\chi^2=1384.055$; $p=0.00$).

Afterwards, we have presented the results considering the retreat movement along with the consequence (jumps to perform the attack) and the setter's decision (plays with the middle blocker) according to the outcome of the attack. It is possible to observe that the movement that resulted in the highest percent of points during counterattack was the FN, in 40.6% of total attacks preceded by this movement. The movement that created the highest number of continued plays was the PN, with 65.9% of total attacks, while the FN was the movement that resulted in the highest number of

Table 2. Relationship between the net retreat and the consequence of the movement

		Conseq_of_movement		Total
		Jump to attack	Don't jump to attack	
Net retreat	FN	Total	306	409
		% Net retreat	74,8%	100,0%
		% Conseq_of_movement	37,9%	29,6%
		% of Total	22,2%	29,6%
	FD	Total	171	394
		% Net retreat	43,4%	100,0%
		% Conseq_of_movement	21,2%	28,6%
		% of Total	12,4%	28,6%
Total	PN	Total	331	577
		% Net retreat	57,4%	100,0%
		% Conseq_of_movement	41,0%	41,8%
		% of Total	24,0%	41,8%
		Total	808	1380
		% Net retreat	58,6%	100,0%
		% Conseq_of_movement	100,0%	100,0%
		% of Total	58,6%	100,0%

FN – Facing the net; FD – Facing the defenders; PN – Perpendicular to the net

Table 3. Relationship between the net retreat, the consequence of the movement and the setter's decision

		Setter decision		Total	
		Play with the MB	Don't play with the MB		
Consequence	FN	Total	133	306	
		% Exit_Consequence	43,5%	100,0%	
		Total	79	171	
		% Exit_Consequence	46,2%	100,0%	
	PN	Total	164	331	
		% Exit_Consequence	49,5%	100,0%	
		Total	376	808	
		% Exit_Consequence	46,5%	100,0%	
Total			432		
			53,5%		
				100,0%	

FN – Facing the net; FD – Facing the defenders; PN – Perpendicular to the net; MB – Middle Blocker

Table 4. Relation between movement retreat from net, the consequence of that movements and the setter decision with the outcome of the counterattack from the MB

		Attack outcome			Total	
		Score Points	Continue plays	Error		
Consequence	FN	Total	54	61	18	
		% SettDesc_Exit_Conseq	40,6%	45,9%	13,5%	
		Total	26	44	9	
	FD	% SettDesc_Exit_Conseq	32,9%	55,7%	11,4%	
		Total	43	108	13	
		% SettDesc_Exit_Conseq	26,2%	65,9%	7,9%	
Total					164	
					100,0%	

FN – Facing the net; FD – Facing the defenders; PN – Perpendicular to the net; MB – Middle Blocker

failed plays (13.5% of the total number of attacks after this movement).

The chi-square analysis (χ^2) has demonstrated that there is a statistically significant relationship between the two variables ($\chi^2=1401.050$; $p=0.00$).

4. Discussion

According to the purposes of this study, it is possible to conclude that there are three types of movements made by the players in order to enhance their counterattack movement. With that said, it is possible to conclude that the most frequently used net retreat movement was Perpendicular to the Net. This movement is justifiable by the fact that the player never loses visual contact with the ball, meaning that this is a movement that allows the player to maintain visual contact from the very first tip until the setter's interception, therefore promoting a fast attack (Castro & Mesquita, 2008; Love, 2008; Maciel et al. 2009). However, the slight rotation that the player has to execute in order to maintain visual contact with the ball from the 1st to the 2nd tip might delay the beginning of the attack approach.

Despite the previous record, it should be noted that not all the net retreat movements have allowed the player to be a viable option during the counterattack. With that said, by analyzing the relationship between the net retreat and the attack option for the setter, it is possible to understand that the movement that has allowed the middle blocker to be a viable option was the movement facing the Net. This data is justifiable by the fact that, even losing the visual contact with the 1st tip, the player does not take part in any rotation and timely realizes, after the setter's movement, where he might make contact with the ball for the 2nd tip. This fact supports the studies about quality in the 1st and 2nd tip by Palao, Santos and Ureña (2004) and Papidimitriou et al. (2004), as well as the data mentioned by Castro and Mesquita (2008) concerning the difficulties of the middle blockers during fast attacks, which force the opposing middle blocker to anticipate his own action as well (Afonso et al., 2010; Afonso & Mesquita, 2011).

Curiously, comparing the previous data with the fact that the setter effectively plays with the middle blocker, it is possible to understand that the values are quite close, which does not allow this study to conclude that there is a more favorable movement for the middle blocker to effectively attack during the counterattack.

On the other hand, when we analyze the outcome of the attack, it is possible to understand that this player is more successful (scores more points)

after using the retreat movement Facing the Net. Another advantage of this movement is the fact that the player never loses visual contact with every movement of the opposing team, meaning that there is a constant perception of where the direct opposing block and defending player(s) are. The retreat movement that created more continued plays for the player was Perpendicular to the Net. This is justifiable precisely by the momentarily loss of visual contact with actions of the opposing side, therefore promoting a late perception of these changes.

5. Conclusions

The most frequently used retreat movement was Perpendicular to the Net. It is possible to understand this result by the middle blocker's need to keep contact with the ball. However, after a detailed analysis, it is possible to conclude that the most successful net retreat movement was Facing the Net. This movement allowed the player to move without any rotations, to timely observe the setter and realize where opposite players are (blockers, attack zone and defenders, defensive zone), therefore boosting his attack actions.

It is recommended to work this last movement in training. However, it will be interesting to understand which movement fits each player the best, depending on their features (whether if they are faster, if they can create an attack approach, etc.). It is also important to understand if the player reacts equally to balls that come from the zones 5 and 1.

6. References

1. Afonso J, Mesquita I, Marcelino R, Silva J. Analysis of the setter's tactical action in high-performance women's volleyball. *Kinesiology*, 2010; 42(1): 82-89.
2. Afonso J, Mesquita I. Determinants of block cohesiveness and attack efficacy in high-level women's volleyball. *European Journal of Sport Science*, 2011; 11(1): 69-75. doi: 10.1080/17461391.2010.487114
3. Almeida R, Pires F, Zarattini J, Rabelo A. Descrição qualitativa da técnica de deslocamento do jogador de meio de rede no voleibol em situação de contra – ataque. *Revista Mackenzie de Educação Física e Esporte*, 2010; 9(2): 21-39.

4. Batista G, Cabral B, Cabral S, Araújo R, Sousa M, Guerra R. Composição Corporal e Somatotipo de Atletas de Voleibol de Praia nos XV Jogos Pan-Americanos. *Revista Brasileira de Ciências da Saúde*, 2010; 14(3): 53-58 doi:10.4034/RBCS.2010.14.03.08
5. Castro J, Mesquita I. Estudo das implicações do espaço ofensivo nas características do ataque no Voleibol masculino de elite. *Revista Portuguesa de Ciências do Desporto*, 2008; 8(1): 114-125.
6. Fleiss JL, Levin B, Cho Paik M. *Statistical Methods for rates and proportion*, 3th eds. Wiley. New York, 2003.
7. Garganta J. A análise da performance nos jogos desportivos. Revisão acerca da análise do jogo. *Revista Portuguesa de Ciências do Desporto*, 2001; 1(1): 57-64.
8. Junior N. Evidências científicas sobre os fundamentos do voleibol: importância desse conteúdo para prescrever o treino. *Revista Brasileira de Prescrição e Fisiologia do Exercício*, São Paulo, 2013; 7(37): 78-97.
9. Love L. *Training The Middle Blocker*; AVCA/Volleyball ACE Power Tips Directory - Official Drill Bulletin of the American Volleyball Coaches Association, 2008; 19(6).
10. Maciel R, Morales A, Barcelos J, Nunes W, Azevedo M, Silva V. Relation between reaction time and specific function in volleyball players. *Fitness Performance Journal*, 2009; 8(6): 395-399.
11. Marcelino R, Afonso J, Moraes J, Mesquita I. Determinants of attack players in high-level men's volleyball. *Kinesiology*, 2014; 46(2): 234-241.
12. Marcelino R, Mesquita I, Afonso J. The weight of terminal actions in Volleyball. Contributions of the spike, serve and block for the teams' rankings in the World League 2005. *International Journal of Performance Analysis in Sport*, 2008; 8(2): 1-7.
13. Marcelino R, Mesquita I. Análise notacional em Portugal. Investigação produzida nas universidades portuguesas. *Revista Portuguesa de Ciências do Desporto*, 2007; 7(1): 75-75.
14. Maroco J, Garcia-Marques T. Qual a fiabilidade do alfa de Cronbach? Questões antigas e soluções modernas? *Laboratório de Psicologia*, 2006; 4(1): 65-90.
15. Matias C, Greco P. Análise da organização ofensiva dos Levantadores campeões da superliga de voleibol. *Revista Brasileira de Ciências de Esporte*, 2011; 33(4): 1007-1028.
16. Neto S. A evolução das regras visando o espetáculo no voleibol. *Revista Digital Buenos Aires*, 2004; 76.
17. Palao J, Santos J, Ureña A. Effect of team level on skill performance in volleyball. *International Journal of Performance Analysis of Sport*, 2004; 4(2): 50-60.
18. Papadimitriou K, Pashali E, Sermaki I, Mellas S, Papas M. The effect of the opponents' serve on the offensive actions of Greek setters in volleyball games. *International Journal of Performance Analysis in Sport*, 2004; 4(1): 23-33.
19. Silva M, Lacerda D, João PV. Match analysis of discrimination skills according to the position of the setter defence zone in high level volleyball. *International Journal of Performance Analysis in Sport*, 2014; 14(2): 463-472.
20. Sterkowicz-Przybycien K, Sterkowicz S, Zak S. Sport Skill Level and Gender with Relation to Age, Physical Development and Special Fitness of the Participants of Olympic Volleyball Tournament Beijing 2008. *Journal of the Croatian Anthropological Society*, 2014; 38(2): 511-516.
21. Tabachnick BG, Fidell LS. *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon, 2007.
22. Trajković N, Milanović Z, Sporiš G, Radisavljević M. Positional differences in body composition and jumping performance among youth elite volleyball players. *Acta Kinesiologica*, 2011; 5(1): 62-66.

Corresponding Author

Rui Pinto,

University of Trás-os-Montes e Alto Douro at Vila Real,
Portugal,

E-mail: rui_pinto_s@hotmail.com

The effect of smoking, dyslipidemia and arterial hypertension on cardiovascular and cerebrovascular diseases by patients with diabetes mellitus

Sabina Zukic¹, Olivera Batic Mujanovic², Suljo Kunic², Azra Kudumovic³

¹ Health Center Banovici, Bosnia and Herzegovina,

² JZNU DZ dr Mustafa Šehović Tuzla, Bosnia and Herzegovina,

³ Health Center Sarajevo, Bosnia and Herzegovina.

Abstract

Diabetes mellitus is a chronic metabolic disease is associated with a high risk the emergence of the cardiovascular disease, especially heart disease and stroke. In order to determine the presence of risk factors for cardiovascular disease in patients with diabetes mellitus were analysed data 82 patients with diabetes. Analysed at whom of the patients are more represented risk factors - diabetic patients with cardiovascular disease in the group of 30 patients, or in diabetic patients without cardiovascular disease in the group of 52 patients. The frequency of the active smoking status is statistically significant ($p = 0.0153$) in the group of patients with stroke than in the group of patients without vascular disease. Systolic blood pressure was significantly higher ($p = 0.0150$) and as diastolic ($p = 0.0040$) in patients without vascular disease. The obtained results indicate that of the risk factors the most represented increased values of lipids, systolic and diastolic blood pressure, and smoking is less represented. The largest number of patients have cerebrovascular disease while myocardial infarction and other vascular diseases the less represented. Smoking status was more represented among patients with stroke compared to patients without vascular disease, and systolic and diastolic blood pressure are better regulated in patients with diabetes and cardiovascular disease compared to patients who have vascular disease.

Key words: diabetes mellitus, cardiovascular disease, obesity, smoking, hypertension, lipid.

Sažetak

Dijabetes mellitus je hronično metaboličko oboljenje udruženo sa velikim rizikom od nastanka kardiovaskularnih oboljenja posebno bolesti srca i moždanog udara. U cilju utvrđivanja zastupljenosti rizika faktora za nastanak kardiovaskularnih oboljenja kod pacijenata oboljelih od dijabetesa analizirani su podaci 82 pacijenta sa dijabetesom. Analizirano je kod kojih pacijenta su više zastupljeni riziko faktori kod pacijenta sa dijabetesom i kardiovaskularnim oboljenjem grupa od 30 pacijenata ili kod pacijenata sa dijabetesom bez kardiovaskularnog oboljenja grupa od 52 pacijenta. Učestalost aktivnog pušačkog statusa je statistički značajno veća ($p=0.0153$) u grupi ispitanika sa moždanim udarom u odnosu na grupu pacijenata bez bolesti krvnih sudova. Sistolni pritisak je statistički značajno viši ($p=0.0150$) kao i dijastolni ($p=0.0040$) kod pacijenata bez bolesti krvnih žila. Dobijeni rezultati ukazuju da su od rizika faktora najviše zastupljeni povišene vrijednosti lipida, sistolnog i dijastolnog pritiska, a pušenje je manje zastupljeno. Najveći broj pacijenta ima cerebrovaskularno oboljenje dok je infarkt miokarda i druga vaskularna oboljenja manje zastupljeni. Pušački status je više zastupljen kod pacijenata sa moždanim udarom u odnosu na pacijente bez bolesti krvnih žila a sistolni i dijastolni pritisak su bolje regulisani kod pacijenata sa dijabetesom i kardiovaskularnim oboljenjima u odnosu na pacijente koji nemaju bolesti krvnih žila.

Ključne riječi: dijabetes mellitus, kardiovaskularne bolesti, gojaznost, pušenje, hipertenzija, lipidi.

Uvod

Dijabetes mellitus je sindrom, hronično metaboličko oboljenje koje se karakteriše poremećajem metabolizma ugljenih hidrata, lipida, proteina, zbog totalnog ili djelomičnog nedostatka biološki aktivnog inzulina a sa posljedičnom hiperglikemijom koja dovodi do hroničnih komplikacija na krvnim žilama, nervima i biološkim membranama različitih tkiva. Vodeći je uzrok smrtnosti od kardiovaskularnih oboljenja u razvijenim zemljama, troškovi liječenja su vrlo visoki. Dijelimo ga na: dijabetes mellitus tip 1, dijabetes mellitus tip 2, ostali specifični tipovi dijabetesa i gestacijski dijabetes mellitus (1).

Hronična hiperglikemija je udružena sa oštećenjem, disfunkcijom, poremećajem rada organa posebno očiju, bubrega, nerava, srca i krvnih žila. Hronične komplikacije kod dijabetesa uključuju retinopatiju sa slabljenjem i gubitkom vida, nefropatiju i insuficijenciju bubrega, perifernu neuropatiju i rizik od pojave ulkusa na stopalima, te amputacije potkoljenice, autonomne neuropatijske koja uzrokuje gastrointestinalne, genitourinarne, kardiovaskularne simptome te sexualnu disfunkciju. Pacijenti koji imaju dijabetes su u većem riziku od kardiovaskularnih incidenta, oštećenja perifernih krvnih žila, cerebrovaskularnih oboljenja, te 15-40 puta imaju češće amputacije podkoljenica (2). Dijabetes tip 1 je uzrokovani apsolutnom deficijencijom inzulina i naziva se još i inzulin ovisni tip dijabetesa. Patogenetski je utvrđeno da u podlozi leži autoimuno oboljenje udruženo sa genetskim markerima, a epidemiološke studije ukazuju na sve veću učestalost ovog tipa šećerne bolesti. Drugi tip 2 mnogo češći kombinacija je rezistencije na inzulin i nedovoljne sekrecije inzulina, nastaje kao posljedica različitih abnormalnosti na nivou perifernih tkiva, čini oko 90% svih slučajeva dijabetesa u razvijenim zemljama svijeta. Najveći broj bolesnika koji oboli od ovog tipa šećerne bolesti je sa prekomjernom tjelesnom težinom i hipertenzijom (3).

Faktori rizika za nastanak dijabetes mellitus tip 2: životna dob, fizička aktivnost odnosno neaktivnost, prekomerna tjelesna težina tj. BMI veći od 25 kg/m², hipertenzija, vrijednosti holesterola i triglicerida, pušenje. Navodi se da je najvažniji riziko faktor za nastanak dijabetesa

gojaznost. Gojaznost se sve češće javlja u djetinjstvu, fizička aktivnost je svedena na minimum, nezdrava ishrana je postala navika te sve više ima osoba koje imaju problem sa gojaznošću. Poseban značaj se daje regulaciji krvnog pritiska, vrijednosti lipida i pušačkom statusu koji doprinose nastanku i razvoju komplikacija dijabetesa što vodi nastanku kardiovaskularnih oboljenja. Vrlo je bitna svakodnevna fizička aktivnost-šetnja, plivanje, vožnja bicikla najmanje pola sata. Rizične godine za nastanak ove bolesti su između 45 i 75 godine života, međutim na dob kao riziko faktor ne možemo uticati ali na ostale možemo i to prije svega na gojaznost i fizičku aktivnost, te je preventivno djelovanje vrlo bitno (4). Za patofiziologiju kardiovaskularnih oboljenja kod ovih pacijenata su bitni riziko faktori: nivo glukoze, dislipidemija, pušenje, hipertenzija. Nivo glukoze je bitan za održavanje u granicama normale kod pacijenata sa dijabetesom zato što direktno utiče na endotel krvnih žila i dovodi do aterosklerotskih promjena a samim tim i do oštećenja brojnih organa (5). Visok krvni pritisak predstavlja bitan riziko faktor za kardiovaskularne incidente prije svega za ICV i infarkt miokarda. Pacijenti sa dijabetes melitusom su u vecem riziku za kardiovaskularne incidente te je kod njih regulacija tlaka i njegovih vrijednosti ispod 140 /85 mmHg vrlo bitna (6).

Brojne studije o prevenciji srčanih oboljenja govore koliko je bitno održavanje nivoa holesterola u normalnim granicama za sprečavanje incidenta (7), pacijenti sa dijabetesom koji su vec imali neki kardiovaskularni incident obavezno moraju biti na hipolipemima. Sa porastom indeksa tjelesne mase raste i incidenca od hiperlipoproteinemija, kod gojaznih osoba su povišene i vrijednosti holesterola, LDL, triglicerida, a snižene vrijednosti HDL. Gojaznost indirektno utiče na druge riziko faktore te tako povećava rizik od kardiovaskularnih incidenta. Pušenje povećava rizik za nastanak dijabetesa za 61% u odnosu na nepušače, pa čak i kod bivših pušača postoji rizik od 23 % za nastanak dijabetesa. Pušenje je opasna kombinacija sa dijabetesom za nastanak kardiovaskularnih oboljenja te kod ovih pacijenata treba više pažnje posvetiti edukaciji i promjeni životnog stila. Prestanak pušenja smanjuje rizik. (8). Zbog velike prevalence i brojnih komplikacija dijabetes melitus je veliki socijalno ekonomski i zdravstveni

problem u svijetu.

Ciljevi istraživanja

Glavni cilj ovog rada je utvrditi koliko su zastupljeni riziki faktori za kardiovaskularna oboljenja kod pacijenata sa dijabetes mellitusom registrovanih u Timu 4 Edukativnog centra porodične medicine u DZ Tuzla. Sporedni ciljevi su bili utvrditi koliko pacijenata ima neko kardiovaskularno oboljenje i koji pacijenti imaju više rizika faktora.

Materijal i metode

Ova studija je retrospektivna studija provedena u praksi ljekara porodične medicine. U studiju su bili uključeni pacijenti koji su oboljeli od dijabetes mellitus tip 2. Od ukupno 1490 pacijenata registrovanih u timu, 82 pacijenta su imala dijagnozu dijabetesa mellitusa te su evidentirani u registru oboljelih od ovog oboljenja od čega je 32 bilo muškog spola, a 50 ženskog spola. U izradi studije korištene su smjernice Evropskog kardiološkog društva iz 2013 god, a pacijenti sa dijabetes mellitusom ubrajaju se u grupu pacijenata sa vrlo visokim rizikom za nastanak kardiovaskularnih oboljenja. U studiji je praćena starosna dob pacijenata i prosječno trajanje bolesti, vrijednosti glukoze $\leq 5,8$ mmol/l, vrijednosti HbA1c $\leq 7\%$, body mass index- BMI ≤ 25 kg/m², obim struka za žene ≤ 80 cm a za muškarce ≤ 94 cm, fizička aktivnost. Ključni parametri koji su praćeni jesu riziki faktori za nastanak kardiovaskularnih oboljenja kod dijabetičara a to su: vrijednosti sistolnog i dijastolnog pritiska $\leq 140/85$ mmHg, lipida-cholesterol ≤ 4 mmol/l, trigliceridi manji od $\leq 1,7$ mmol/l, te pušački status. Praćena je zastupljenost infarkta miokarda, moždanog udara i drugih vaskularnih oboljenja kod ovih pacijenata. Pacijenti su podijeljeni u dvije grupe: jednu grupu su činili pacijenti sa dijabetes mellitusom i kardovaskularnim oboljenjima a drugu grupu su činili pacijenti sa dijabetesom bez bolesti krvnih žila.

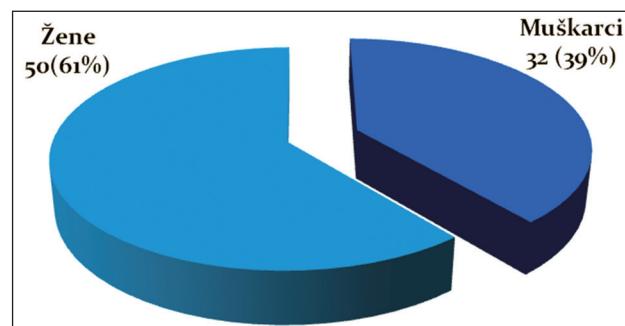
Statističke analize

Dobijeni podaci su obrađeni deskriptivnom statističkom analizom, analizirane su srednje vrijednosti (aritmetička sredina), mjere disperzije

(raspon i standardna devijacija) i frekvenca javljanja, te dobijeni rezultati su testirani χ^2 testom i Mann Whitney U testom. Svaka statistička analiza je uradjena sa intervalom pouzdanosti od 95%, a vrijednost p < 0,05 smatra se statistički značajnom.

Rezultati

U studiju su bila uključena 82 pacijenta, 50 žena (61%) i 32 muškarca (39%) (Slika 1).



Slika 1. Distribucija ispitanika u odnosu na spol

Prosječna dob pacijenata u ovoj studiji bila je 67,6 (33 - 86) \pm 11,3 god. a prosječno trajanje bolesti 9,4 (1 - 23) \pm 5,6 god. Više vrijednosti glukoze u krvi je imalo 62 pacijenta a prosječne vrijednosti su iznosile 17,0 (4,8 - 21,2) \pm 3,3 mmol/l. Vrijednosti glikoliziranog hemoglobina A1C (HbA1c) > 7,0 % su nađene kod njih 24 a prosječne vrijednosti mjereno parametra izražene u procentima su iznosile 8,0 (5,8 - 11,7) \pm 1,3%. Patološke vrijednosti indeksa tjelesne mase (eng. Body Mass Index - BMI) je imao 41 pacijent a prosječna vrijednost je iznosila 29,8 (21 - 45) \pm 5,6. Prekomjeran obim struka, (muškarci, > 94cm; žene, > 80cm) je imalo 12 pacijenata od čega je osam bilo ženskog spola sa prosječnom vrijednosti 102,1 (84 - 126) \pm 12,0 cm. Prosječna vrijednost prekomjernog obima struka kod pacijenata muškog spola je iznosila 110,0 (108 - 112) \pm 1,8 cm. Redovnu fizičku aktivnost ima njih 15. Više vrijednosti sistolnog arterijskog pritiska je imao 21 pacijent a dijastolnog 18 pacijenata. Više vrijednosti cholesterola su izmjerene kod 32 pacijenata a triglycerida kod 27 pacijenta. Prosječne vrijednosti pomenutih parametra-sistolni i dijastolni pritisak, cholesterol, triglyceridi date su u sljedećoj tabeli (Tabela 1).

Aktivan pušački status ima 18 (22%) pacijenata, 14 (17%) je bivših pušača, a 50 (61%) nije

Tabela 1. Prosječne vrijednosti arterijskog pritiska i lipida u krvi ispitivane grupe pacijenata

Riziko faktori		Median	Percentile (25 - 75)	Min.	Max.	SD
Krvni pritisak (mmHg)	Sistolni	130.0	120.0 - 150.0	110.0	180.0	16.9
	Dijastolni	80.0	80.0 - 85.0	60.0	100.0	7.6
Lipidi (mmol/l)	Holesterol	5.4	4.4 - 6.1	3.6	9.5	1.8
	Trigliceridi	2.1	1.6 - 2.9	0.8	6.0	1.4

Min. - minimalna; Max. - maksimalna; SD - standardna devijacija; TA (mmHg) - Arterijski pritisak, vrijednosti izražene u milimetrima živinog stuba; LP st (mmol/l) - lipidni status, vrijednosti izražene u milimolima po litru.

Tabela 2. Prosječne vrijednosti arterijskog pritiska i lipida kod ispitanika koji su imali infarkt srčanog mišića

Riziko faktori		Median	Percentile (25 - 75)	Min.	Max.	SD
Krvni pritisak (mmHg)	Sistolni	130.0	127.5 - 134.8	120.0	149.0	12.1
	Dijastolni	77.5	73.8 - 80.0	70.0	80.0	4.8
Lipidi (mmol/l)	Holesterol	6.0	6.0 - 6.3	5.9	6.5	0.4
	Trigliceridi	1.7	1.7 - 2.1	1.4	2.2	0.4

Min. - minimalna; Max. - maksimalna; SD - standardna devijacija; TA (mmHg) - Arterijski pritisak, vrijednosti izražene u milimetrima živinog stuba; LP st (mmol/l) - lipidni status, vrijednosti izražene u milimolima po litru.

Tabela 3. Prosječne vrijednosti arterijskog pritiska i lipida kod ispitanika koji su imali moždani udar

Rizikofaktori		Median	Percentile (25 - 75)	Min.	Max.	SD
Krvni pritisak (mmHg)	Sistolni	110.0	120.0 - 130.0	110.0	165.0	14.3
	Dijastolni	75.0	70.0 - 80.0	60.0	80.0	7.2
Lipidi (mmol/l)	Holesterol	5.0	4.3 - 6.6	3.5	8.6	1.8
	Trigliceridi	2.8	2.0 - 3.1	0.8	3.7	1.0

Min. - minimalna; Max. - maksimalna; SD - standardna devijacija; TA (mmHg) - Arterijski pritisak, vrijednosti izražene u milimetrima živinog stuba; LP st (mmol/l) - lipidni status, vrijednosti izražene u milimolima po litru.

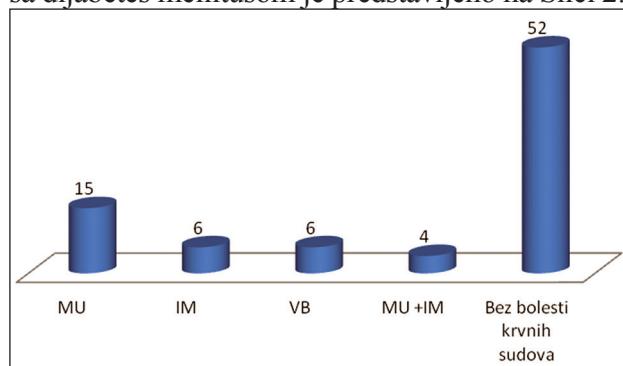
Tabela 4. Prosječne vrijednosti arterijskog pritiska i lipida kod ispitanika koji nemaju bolest krvnih sudova

Riziko faktori		Median	Percentile (25 - 75)	Min.	Max.	SD
Krvni pritisak (mmHg)	Sistolni	140.0	130.0 - 150.0	110.0	180.0	16.6
	Dijastolni	80.0	80.0 - 90.0	65.0	100.0	7.5
Lipidi (mmol/l)	Holesterol	5.7	4.5 - 6.1	3.7	9.5	1.4
	Trigliceridi	2.0	1.6 - 2.9	1.0	6.0	1.6

Min. - minimalna; Max. - maksimalna; SD - standardna devijacija; TA (mmHg) - Arterijski pritisak, vrijednosti izražene u milimetrima živinog stuba; LP st (mmol/l) - lipidni status, vrijednosti izražene u milimolima po litru.

nikada aktivno pušilo.

Zastupljenost infarkta miokarda, moždanog udara i drugih vaskularnih oboljenja kod pacijenata sa dijabetes mellitusom je predstavljeno na Slici 2.



MU – Moždani udar; IM – Infarkt miokarda; VB – neka druga vaskularna bolest.

Slika 2. Zastupljenost pojedinih oboljenja u ispitivanoj grupi

Od 82 pacijenta sa dijabetes mellitusom njih 15 ima moždani udar a 6 infarkt miokarda, 6 pacijenata ima neko vaskularno oboljenje, 6 ima i moždani udar i infarkt miokarda, a 52 pacijenta su bez bolesti krvnih žila. U ovoj studiji smo pratili prosječne vrijednosti sistolnog i dijastolnog pritiska, holesterola i triglicerida te pušački status kod pacijenata koji su imali infarkt miokarda, moždani udar i onih koji nisu imali bolest krvnih sudova. Rezultati su predstavljeni u tabeli 2, 3 i 4.

Aktivan pušački status je imao jedan (20%) pacijenata.

Aktivan pušački status je imalo sedam (47%) pacijenata.

Aktivan pušački status ima sedam (13%) pacijenata.

Značajnost razlika koje su dobivene deskriptivnom statističkom analizom testirane su χ^2 testom i Mann-Whitney U testom. Dobijeni rezultati i signifikantsnost razlika predstavljeni su u tabeli 5 i 6.

Učestalost aktivnog pušačkog statusa je statistički značajno veća u grupi ispitanika sa moždanim udarom u odnosu na grupu u kojoj nema bolesti krvnih sudova.

Sistolni pritisak je statistički značajno viši u grupi ispitanika bez bolesti krvnih sudova u odnosu na grupu ispitanika sa moždanim udarom.

Dijastolni pritisak je statistički značajno viši u grupi ispitanika bez bolesti krvnih sudova u odnosu na grupu ispitanika sa moždanim udarom.

Diskusija

Rezultati koje smo dobili u ovoj studiji govore da su pacijenti sa dijabetesom uglavnom starije životne dobi, skoro tri četvrtine pacijenata su imali povišene vrijednosti glukoze u krvi, samo njih 24 su imali regulisan HbA1c, a prosječna vrijednost

HbA1c je iznosila 8%. Od ukupno 82 pacijenta njih pola je imalo patološke vrijednosti BMI, mali broj ih je fizički aktivno. Kad je u pitanju pritisak većina njih ima dobro regulisan pritisak, samo njih 21 ima povišene vrijednosti sistolnog a 18 pacijenata ima povišene vrijednosti dijastolnog pritiska. Povećane vrijednosti holesterola je imalo 32 pacijenta, a triglicerida manje, njih 27. Obzirom da su pacijenti oboljeli od dijabetesa u grupi pacijenta sa vrlo visokim rizikom za razvoj kardiovaskularnih bolesti, pratili smo i zastupljenost tih oboljenja te poredili zastupljenost riziko faktora kod pacijenta sa vaskularnim oboljenjima i onih bez kardiovaskularnih oboljenja. Velika većina pacijenata oboljelih od dijabetesa njih 52 nemaju kardiovaskularno oboljenje, najviše je zastupljen moždani udar kod 15 pacijenata a infarkt miokarda i neko drugo kardiovaskularno oboljenje ima po 6 pacijenata. Poređenjem riziko faktora kod pacijenta sa moždanim udarom, infarktom miokarda i pacijenata bez kardiovaskularnog oboljenja uočili smo da postoji statistički značajno veći i sitolni i dijastolni pritisak kod pacijenata bez kardiovaskularnih oboljenja. Kad su u pitanju lipidi uočili smo da nema statistički značajne razlike poređenjem ovih grupa, ali kad je u pitanju pušački status statistički značajno veći pušački status imaju pacijenti sa moždanim udarom u odnosu

Tabela 5. Signifikantnost razlika u učestalosti pozitivnog pušačkog statusa kod pacijenata koji su uz dijabetes mellitus imali ishemijski moždani udar, infarkt srčanog mišića i kod onih bez bolesti krvnih sudova

Riziko faktor	MU / IM	MU / Bez bolesti KS	IM / Bez bolesti KS
Pušački status	$\chi^2 = 0.278$ p= 0.5980	$\chi^2 = 5.887$ p= 0.0153*	$\chi^2 = 0.074$ p= 0.7856

MU - Moždani udar; IM - Infarkt miokarda; Bez bolesti KS - Bez bolesti krvih sudova; χ^2 - Yatesov Hi - kvadrat test; p ... - mogućnost slučajne razlike testirane hipoteze.

Tabela 6. Signifikantnost razlika prosječnih vrijednosti arterijskog pritiska, holesterola i triglicerida kod pacijenata koji su uz diabetes mellitus imali i ishemijski moždani udar, infarkt srčanog mišića ili nemaju dijagnostikovanu bolest krvnih sudova

Riziko faktori		MU / IM p	MU / Bez B KS p	IM / Bez B KS p
Krvni pritisak (mmHg)	Sistolni	0.4341	0.0150*	0.4537
	Dijastolni	0.8769	0.0040*	0.1047
Lipidi (mmol/l)	Holesterol	0.5333	0.6425	0.2601
	Trigliceridi	0.2181	0.5420	0.5990

MU - Moždani udar; IM - Infarkt miokarda; Bez B KS - Bez bolesti krvih sudova; p ... - mogućnost slučajne razlike dvostruko testirane hipoteze (eng. Two sided); TA (mmHg) - Arterijski pritisak, vrijednosti izražene u milimetrima živinog stuba; LP st (mmol/l) - lipidni status, vrijednosti izražene u milimolima po litru.

na druge dvije grupe.

U studiji koju je radila Christina-Maria Kastorini i saradnici u grupi od 1000 pacijenata od kojih 250 ima ACS, 250 ishemski cerebrovaskularni incident, a 500 bez kardiovaskularnih oboljenja kontrolna grupa, navodi se značaj u prevenciji rizika faktora za kardiovaskularne bolesti te da su u većem riziku pacijenti sa aktivnim pušačkim statusom, hipertenzijom, hiperholisterolemijom, dijabetesom te oni koji već imaju pozitivnu porodičnu anamnezu i da postoji statistička značajnost dobijenih rezultata (9).

Kontrolom rizika faktora se može preventivno djelovati te u velikom procentu čak do 35–45% smanjiti broj kardiovaskularnih oboljenja kod dijabetičara što je pokazala studija rađena u aprilu 2014 god u Velikoj Britaniji kod 606 pacijenata muškog spola i 603 pacijenta ženskog spola (10). Kardiovaskularna oboljenja su i vodeći uzrok smrtnosti kod pacijenata sa dijabetesom te je edukacija ovih pacijenata o promjeni životnog stila, prestanku pušenja, upotrebe antilipemika, fizičkoj aktivnosti, redovnoj upotretbi lijekova znatno uticala na smanjenje kardiovaskularnih incidenata (11). Williams i saradnici su radili studiju uticaja fizičke aktivnosti kod pacijenata sa hiperholisterolemijom te pratili rizik od razvoja dijabetesa, kardiovaskularnih bolesti i hipertenzije kod ovih pacijenata, a njihovi rezultati su pokazali da je rizik od nastanka dijabetesa 26%, od kardiovaskularnih bolesti 8% a hipertenzije 4% (12).

Studija koju je radio B. Dahlöf 2010 god govori o epidemiološkim razmjerama i karakteristikama kardiovaskularnih bolesti, te da više od 70 % populacije ima multiple rizike za nastanak kardiovaskularnih oboljenja a da samo njih 7 % nema nikakav rizik za kardiovaskularna dešavanja i da riziko faktori epidemiološki gledano imaju pandemijske proporcije. U Sjevernoj Americi 24,7% populacije ima riziko faktore za kardiovaskularna oboljenja, u Aziji 10,9%, u Zapadnoj Evropi 15,1% i Istočnoj Evropi 3,3 % (13). Studija C . R Pischke i saradnika rađena kod pacijenata koji su imali kardiovaskularno oboljenje i dijabetes mellitus te pacijenta koji nisu imali dijabetes mellitus pokazala je da su signifikantno veći pritisak i BMI imali pacijenti koji su imali i kardiovaskularno oboljenje i dijabetes u odnosu na one koji su imali samo kardiovaskularno oboljenje bez dijabetesa.

Takođe kod pacijenata sa dijabetesom bila je lošija istorija hipertenzije, pozitivne porodične anamnese na kardiovaskularno oboljenje i hiperlipidemije u odnosu na one koji nisu imali dijabetes (14).

Epidemiološka studija rađena u martu 2014 god istraživala je značaj pritiska na rizik od budućih kardiovaskularnih dešavanja kod pacijenata sa dijabetes mellitusom, te su rezultati pokazali da je porast pritiska pozitivno povezan sa budućim kardiovaskularnim dešavanjima (15). Meta analiza E.P. Navarese i saradnika objavljena 2013 godine pokazala je da pacijenti koji imaju hiperlipidemiju i koriste lipide i oni koji imaju hiperlipidemiju i koriste placebo veci rizik za nastanak dijabetes mellitusa de novo imaju pacijenti koji koriste rosuvastatin od 20 mg u odnosu na placebo, atorvastatin od 80 mg komparira placebo efektu, dok najniži rizik za nastanak dijabetes mellitusa imaju oni koji koriste pravastatin od 40 mg, a druga studija objavljena u februaru 2015 god govori da su u većem riziku od nastanka dijabetesa oni pacijenti koji koriste statine a imaju klinički manifestnu vaskularnu bolest (16, 17). Rana i saradnici radili su analizu kod pacijenata koji imaju dijabetes mellitus i dislipidemiju kao riziko faktor za kardiovaskularna oboljenja, te su rezultati pokazali da veći rizik od kardiovaskularnih incidenata imaju oni pacijenti koji imaju dislipidemiju i muškarci i žene (18).

Zaključak

Od riziko faktora najviše su zastupljene povišene vrijednosti lipida, potom povišene vrijednosti sistolnog i dijastolnog pritiska, dok pušenje kao riziko faktor je prisutan kod manjeg broja pacijenata oboljelih od dijabetes mellitusa. Najveći broj pacijenata ima cerebrovaskularno oboljenje dok infarkt miokarda i druga vaskularna oboljenja su znatno manje zastupljena. Pušački status je više zastupljen kod pacijenata sa moždanim udarom u odnosu na one bez oboljenja krvnih sudova, a sistolni i dijastolni pritisak su bolje regulisani kod pacijenata sa moždanim udarom u odnosu na one bez oboljenja krvnih sudova. Prevencija šećerne bolesti je vrlo bitna. Preventivno djelovanje na riziko faktore u praksi ljekara porodične medicine može smanjiti rizik od nastanka kardiovaskularnih oboljenja kod ovih pacijenata i vaskularnih komplikacija.

likacija šećerne bolesti, sačuvati radnu sposobnost stanovništva, kvalitet i dužinu života što je značajno za svaku osobu ali i za društvo u cjelini predstavlja veliku uštedu novčanih sredstava.

Literatura

1. Heljić B. *Dijagnostičko terapijski vodič za Diabetes Mellitus*. Sarajevo: Ministarstvo zdravstva Kantona Sarajevo, 2005; 9958-631-35-0.
2. Škrabalo Z, Granić M, Metelko Ž. *Endokrini sustav, diabetes i bolesti metabolizma*. Zagreb: Naprijed, 1997.
3. Đorđević P, Lepšanović T, Kovač T. *Endokrinologija*. Beograd: Savremena administracija, 1996.
4. Diabetes, Asssotiation American. *Definition and description of diabetes mellitus*. *Diabetes care*, 20014. 1:S81-90doi:10.2337/dc14-S081.
5. Zhang H, Dellsperger KC, Zhang C. *The link between metabolic abnormalities and endothelial dysfunction in type 2 diabetes: an update*. *Basic research in Cardiology*, 2012, Tom. Tom 107. 237.
6. Berthet K, Neal BC, Chalmers JP. *Reductions in the risks of recurrent stroke in patients with and without diabetes: the PROGRESS trial*. *Blood pressure*, 2004, Tom. Tom 13. 7-13.
7. Collins R, Armitage J, Parish S. *Effects of cholesterol-lowering with simvastatin on stroke and other major vascular events in 20536 people with cerebrovascular disease or other risk conditions*. *The Lancet*, 2004, Tom. Tom 363. 757-767. ,
8. Hewitt J, Guerra LC, Fernandes-Moreno MC, Sierra C. *Diabetes and Stroke Prevention: A Review*. *Hindawi Publishing Corporation Stroke Research and Treatment*, 2012, Tom. Tom. Volume 2012. 673187.
9. Kastorini CM, Georgosopoulou E, Vemoss KN, Nikolau V. *Comparative Analysis of Cardiovascular Disease Risk Factors Influencing Nonfatal Acute Coronary Syndrome and Ischemic Stroke*. *The American Jurnal of Cardiology*, 2013, Tom. Tom 112. 349-354.
10. Wong ND, Tao Ch, Malik Sh, Iloeje U. *Preventable Coronary Heart Disease Events from Control of Cardiovascular Risk Factors in US Adults With Diabetes*. *The American Jurnal of Cardiology*, 2014, Tom. Tom 113. 1356-1361.
11. Davidson MH. *Cardiovascular Risk Factors in a Patient with Diabetes Mellitus and Coronary Artery Disease: Therapeutic Approaches to Improve Outcomes: Perspectives of a Preventive Cardiologist*. *The American Jurnal of Cardiology*, 2012, Tom. Tom 110. 43B-49B.
12. Williams PT, Franklin BA. *Incident Diabetes Mellitus, Hypertension, and Cardiovascular Disease Risk in Exercising Hypercholesterolemic Patients*. *The American Jurnal of Cardiology*, 2015, Tom. Tom. in Press. available online.
13. Björn D. *Cardiovascular Disease Risk Factors: Epidemiology and Risk Assessments*. *The American Jurnal Cardiology*, 2010, Tom. Tom 105. 3A-9A.
14. Pischke RC, Weidner G, Elliott-Eller M, Scerwitz L, Merrith-Worden TA, et al. *Comparison of Coronary Risk Factors and Quality of Life in Coronary Artery Disease patient With Versus Without Diabetes Mellitus: The American Jurnal od Cardiology*, 2006, Tom. Tom 97. 1267-1273.
15. Kodama S, Chika Horikawa Ch, Fujihara K, Yoshiyawa S, Yachi Yet al. *Meta. Analysis of the Quantitative Relation Between Pulse Pressure and Mean Arterial Pressure and Cardiovascular Risk in Patient With Diabetes Mellitus: The American Jurnal of Cardiology*, 2014, Tom. Tom 113. 1058-1065.
16. Navarese EP, Buffon A, Andreotti F, Kozinski M, Welton N, et al. *Meta-Analysis of Impact of Differnt Types and Doses of Statins on New-Onset Diabete Mellitus*. Tom 111, s.l.: *The American Jurnal of Cardiology*, 2013; 1123-1130.
17. Van de Woestijne AP, Van der Graff Y, Westerink J, Nathoe HM, Visser FLJ. *Effect of Statin Therapy on Incident Type 2 Diabetess Mellitus in Patients With Clinically Manifest Vascular Disease*: *The American Jurnal of Cardiology*, 2015, Tom. Tom 115. 441-446.
18. Rana JS, Liu JY, Moffet HH, Solomon MD, Go AS, Jaffe MG, Karter AJ. *Metabolic Dyslipidemia and Risk of Coronary Heart Disease in 28,318 Adults With Diabetes Mellitus and Low-Density lipoprotein Cholesterol <100 mg/dl*: *The American Jurnal of Cardiology*, 2015, Tom. In press, availble online.

Corresponding Author

Sabina Zukic,
Health Center Banovici,
Banovici,
Bosnia and Herzegovina,
E-mail: sabinazukic@live.com

Medicinska dokumentacija u BiH

Kamal Bashir, Omer Shakour

Faculty of Medicine University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Sažetak

Medicinska dokumentacija i evidencija u zdravstvu predstavlja važan segment i dio svakodnevnih aktivnosti zdravstvenog osoblja. Bosna i Hercegovina i druge zemlje u okruženju pokušavaju ići u korak s onim iz ravijenog svijeta u pogledu moderniziranja i kompjuterizacije postojećih sistema dokumentacije i evidencije, odnosno, prelaska s manuelnih i poluautomatskih metoda obrade na računarsku obradu medicinskih podataka. Većina zemalja Evrope razvila je standarde i klasifikacijske sisteme za potrebe prikupljanja, obrade, analize i interpretiranja obrađenih medicinskih podataka.

Cilj ovog rada je da, čineći presjek kroz tri cjeiline, predloži rješenje za vođenje medicinske dokumentacije i evidencije u Bosni i Hercegovini: Postojeća dokumentacija i evidencija u sistemu zdravstva, koja je gotovo u potpunosti preuzeta iz prethodnog režima

Uvod

Postojeća dokumentacija i evidencija u sistemu zdravstva vodi se u skladu sa odgovarajućim zakonima, pravilima i aktima propisanim od strane nadležnih institucija (Ministarstvo zdravlja FBiH, Federalni zavod za javno zdravstvo i dr.) a koji su prošli odgovarajuće procedure usaglašavanja i verifikacije. Činjenica je da je veći dio medicinskih dokumenata i evidencionalih obrazaca gotovo "preslikan" iz prethodnog režima što je uskratio mogućnosti njihovog prilagođavanja na savremeni način obrade, analize i interpretacije, odnosno, mogućnosti njihovog korištenja u konačnom odlučivanju od strane odgovornih donosilaca odluka.

Postoje odgovarajuće preporuke date od strane Međunarodne federacije za dokumentaciju te odgovarajućih ekspertnih grupa Evropske i Svjetske asocijacije medicinske informatike koje su aktivno involvirane u ovaj segment medicinske informatike koji se zove medicinska dokumentaristica.

Očito je da sadašnji koncept vođenja osnovne medicinske dokumentacije u zdravstvu ne zadovoljava sve zahtjeve koji se postavljaju u sistemu a pogotovo za promptno, efikasno i kvalitetno donošenje odluka u sistemu zdravstva. Nadalje, veći dio ovog segmenta treba reducirati, standardizirati i prilagoditi računarskom sistemu obrade. Posebno pitanje je koja forma elektronskog medija za pohranu medicinskih podataka o pacijentu i sve му onome što se dešava u procesu njegovog evidentiranja, vođenja odgovarajuće dokumentacije i evidencije u toku ostvarivanja usluga i dr. o čemu se zadnjih godina vode polemike, a koje se sastoje u tome da li kao standardni nosač medicinskih podataka o pacijentu može biti bar-kod kartica, magnetska kartica, čip-kartica, pametna ili laserska kartica. O ovim dilemama pisali smo više puta i javno pozivali na diskusiju odgovorne stručnjake u zdravstvu a naročito one koji bi trebali da odlučuju.

Potreba za informacijom ne smije voditi u tom pravcu da sam pacijent zbog toga bude zanemaren ili stavljen u opasnost. U centru pažnje uvijek mora biti pacijent i njegovo dostojanstvo i razvojne mogućnosti. Razvoj informacionih tehnologija se mora posmatrati kao uslužni servis za pacijenta. Fundamentalno pravo svakog pacijenta na zdravlje i zdravstvenu zaštitu podrazumijeva da se sa medicinskim podacima rukuje na kompetentan način što uključuje:

- Pravo za dobijanje informacija o samom zdravstvenom statusu pacijenta ili o tretmanu;
- Pravo da se dobije korist od sveobuhvatnog medicinskog zapisa pacijenta;
- Pravo na protestiranje zbog neodgovarajućeg rukovanja medicinskim podacima;
- Pravo na odgovarajuću akciju.

Hipokratova zakletva se smatra osnovnim dokumentom na kojem se zasniva rad zdravstvenih profesionalaca u gotovo svim evropskim zemljama. Ovaj temeljni «akt» je sada na velikoj

kušnji zbog propulzivnog razvoja informacionih tehnologija i evolucije medicinske prakse. Kako profesionalni odnos liječnika i pacijenta zahtjeva participaciju i liječnika i pacijenta, očigledno je da problem zaštite i povjerljivosti podataka mora biti razmotren od svih aktera uključenih u zdravstveni sistem. U EU je dogovoren set fundamentalnih principa za razvoj evropske zdravstvene infrastrukture tako da se komunikacione tehnologije uključene u zdravstveni sistem moraju biti korištene na bezbjedan i siguran način, pogodno, efikasno, multilingvalno i na zakonski prihvatljiv način za korisnike, pacijente, nabavljače i ostale. U zemljama EU kreira se takav sistem (Open System of Medicine) koji omogućava bilo kojeg pacijenta da konsultira bilo kojeg zdravstvenog profesionalca uz najviši nivo povjerljivosti. Ovakva situacija dovodi medicinski zapis pacijenta u središte pozornosti. Ovakvo kompleksno okruženje zahtjeva profesionalno planirane protokole za zaštitu zapisa, njivog sadržaja, korištenja i arhiviranja. Takođe, potrebno je načiniti dodatne mјere za procjenu rizika, inspekcije i kontrole

Postojeća dokumentacija i evidencija u sistemu zdravstva vodi se u skladu sa odgovarajućim zakonima, pravilima i aktima propisanim od strane nadležnih institucija (Ministarstvo zdravlja FBiH, Federalni zavod za javno zdravstvo i dr.) a koji su prošli odgovarajuće procedure usaglašavanja i verifikacije. Činjenica je da je veći dio medicinskih dokumenata i evidencionih obrazaca gotovo "preslikan" iz prethodnog režima što je uskratilo mogućnosti njihovog prilagođavanja na savremeni način obrade, analize i interpretacije, odnosno, mogućnosti njihovog korištenja u konačnom odlučivanju od strane odgovornih donosilaca odluka.

Ciljevi istraživanja

Ciljevi ovog istraživanja su:

- deskriptivnim metodom utvrditi sadašnji sistem organiziranja i funkcioniranja zdravstvenog statističkog sistema u FBiH;
- izvršiti analizu kvantiteta i kvaliteta podataka koji se prikupljaju u sistemu PZZ u FBiH;
- ukazati na neophodnost poboljšanja kvaliteta podataka i uvođenja jedinstvene metodologije u zdravstveno-statističkom izvještavanju o radu timova PZZ i Obiteljske

medicine uvođenjem Porodičnog kartona kao jedinstvenog standarda u vođenju medicinske dokumentacije i evidencije na nivou PZZ u FBiH.

Metodologija istraživanja

U istraživanju je korišten analitičko-deskriptivni metod na osnovu podataka u postojećim izvještajnim obrascima, koji su u upotrebi na teritoriji Federacije Bosne i Hercegovine, kao i preporuka za poboljšanje kvaliteta i sigurnosti zdravstvene zaštite Agencije za kvalitet i akreditaciju u zdravstvu.

Rezultati istraživanja

Jedan od ciljeva reforme zdravstva u FBiH je pružanje zdravstvene zaštite što bliže stanovništvu, što se ostvaruje implementacijom Porodične/obiteljske medicine. S obzirom na to, posljednjih godina se pri dodjeli novih specijalizacija davala prednost specijalizaciji Porodične/obiteljske medicine. Na ovom nivou zdravstvene zaštite implementiraju se i centri za mentalnu i fizikalnu rehabilitaciju u zajednici.

Rezultati istraživanja su pokazali da je prosječna udaljenost korisnika od najbliže ambulante PZZ-e kod 54 % stanovništva FBiH manja od 1.500 m, kod 24 % je ova udaljenost između 1.500 i 5.000 m, dok 22 % stanovništva stanuje na više od 5.000 m udaljenosti od prve ambulante.

U Primarnoj zdravstvenoj zaštiti u Federaciji BiH radilo je 34 % ukupnog broja doktora medicine, a 73,0 % njih su bili specijalisti. Ovaj vid zdravstvene zaštite osiguravao je 1.277 radnih timova, što predstavlja povećanje za 2,6 % u odnosu na prethodnu godinu. Na 100.000 stanovnika bilo je 55 doktora medicine i 122 zdravstvenih tehničara, a na jednog doktora u prosjeku radila su 2,2 zdravstvena tehničara (6,7).

Na jednog doktora medicine je u prosjeku radio 2,9 zdravstvenih tehničara. U odnosu na prethodnu godinu, broj doktora medicine zaposlenih u bolnicama povećan je za 0,6 %, a broj zdravstvenih tehničara je smanjen za 2,7 %.

Na bazi podataka za opće i kantonalne bolnice, takve bolnice raspolažu sa 8.290 bolničkim krevetom, uz prosječnu iskorištenost 69,5 %, a

prosječna dužina ležanja sa zauzetosti kreveta je 9,8 dana.

Očito je da sadašnji koncept vođenja osnovne medicinske dokumentacije u zdravstvu ne zadovoljava sve zahtjeve koji se postavljaju u sistemu a pogotovo za promptno, efikasno i kvalitetno donošenje odluka u sistemu zdravstva. Posebno pitanje je koja forma elektronskog medija za pohranu medicinskih podataka o pacijentu i svemu onome što se dešava u procesu njegovog evidentiranja, vođenja odgovarajuće dokumentacije i evidencije u toku ostvarivanja usluga i dr. bude korištena.

U Federaciji Bosne i Hercegovini je trenutno u procesu reforma zdravstva i ekspertni timovi trenutno rade na reduciraju “papirne” dokumentacije i kompjuterizaciji kroz programe obiteljske medicine u organizaciji Federalnog ministarstva zdravstva. Također, u Bosni i Hercegovini se implementiraju mnogi pilot projekti koji su nezavisno razvijeni i najčešće podržani od međunarodnih organizacija ili stranih univerziteta. Ovi projekti se zasnivaju na stranim zdravstvenim sistemima i kao takvi nisu prilagođeni Bosni i Hercegovini i njenim potrebama i zahtjevima. Naša je preporuka da se ti nosači podataka koriste kao osnova za izradu Porodičnog kartona.

Zaključci

Na osnovu uvida u zvanične izvještaje Federalnog zavoda za javno zdravstvo koji se odnose

na obrađene podatke prikupljene putem oficijelnih statističkih obrazaca, a u skladu s postojećom zakonskom regulativom, posebno setova podataka za segment Primarne zdravstvene zaštite I Porodične/obiteljske medicine, što je i bio predmet ovog rada, možemo zaključiti sljedeće:

- Postojeći zdravstvenostatistički sistem nije jedinstven na nivou cijelokupne BiH, već se podaci vode na entitetskim nivoima, pri čemu nema međusobne koordinacije, niti generalnog sublimiranja podataka i jedinstvenog prikaza stanja razvijenosti I iskorištenosti zdravstvenog sistema na nivou države BiH. To je i razlog da Odjel za zdravstvenu informatiku Svjetske zdravstvene organizacije ima nepotpune podatke o mreži zdravstvenih institucija, prostoru, kadru i opremi, te iskorištenosti zdravstvenih kapaciteta I zdravstvenom stanju stanovništva u BiH, koji se redovno dostavlja ovom Odjelu i prikazuje u HFA programu, tj. statističkom paketu, dostupnom na web sajtu SZO.
- Postojeći zdravstvenostatistički sistem, koji obuhvata sve procese i funkcije, od prikupljanja do obrade i analize zdravstvenih podataka, od jedinica Obiteljske medicine pri domovima zdravlja do kliničkih centara, uglavnom se radi po “preslikanoj” metodologiji i nešto reduciranim standardiziranim obrascima

Tabela 1. Tip historije bolesti

Tip anamneze	Historija trenutne bolesti	Status	Porodična/Socijalna anamneza
Fokusurana na problem (ukratko)	Opis 1-3 elementa trenutne bolesti ili opis 1-2 hronična ili inaktivna stanja	b/o	b/o
Fokusurana na problem – proširena varijanta (ukratko)	Opis 1-3 elementa trenutne bolesti ili opis 1-2 hronična ili inaktivna stanja	Klinički potvrđen, pozitivan ili negativan, odgovor sistema u vezi bolesti	b/o
Detaljna	Opis najmanje 4 elementa trenutne bolesti ili opis najmanje 3 hronična ili inaktivna stanja	Od 2-4 sistema	Najmanje jedan elemenat iz bilo koje kategorije.
Sveobuhvatna	Opis najmanje 4 elementa trenutne bolesti ili opis najmanje 3 hronična ili inaktivna stanja	Klinički potvrđen, pozitivan ili negativan, odgovor najmanje 5 sistema u vezi bolesti	Najmanje jedan elemenat iz dvije do tri kategorije.

tekuće evidencije, a u skladu sa Zakonom o zdravstvenoj zaštiti FBiH. Nažalost, iako podaci koje smo analizirali prikazuju dosta cjelevitu i realnu sliku razvijenosti zdravstvenog sistema, iskorištenosti zdravstvenih kapaciteta i zdravstvenog stanja stanovništva u FBiH, ipak, ima se dojam da se ti podaci ne vode dovoljno kvalitetno, ažurno i promptno. Ovo je paušalna ocjena, a da bi se ovo zaista i dokazalo, trebalo bi provesti ozbiljnije istraživanje.

- Postojeća dokumetacija i evidencija uglavnom je papirnatog karaktera i samo se sumarne obrade rade elektronskim putem.
- Minimalni setovi podataka u Primarnoj zdravstvenoj zaštiti, odnosno Obiteljskoj medicini, također su preslikani iz prethodbog režima i koliko god da su prilagođeni postojećem konceptu Primarne zdravstvene zaštite u BiH neophodno je ozbiljnije poraditi na ovome i prilagoditi ih konceptu Porodične/obiteljske medicine koji se zagovara u BiH, a u skladu sa preporukama nadležnih institucija.(6)

Corresponding Author

*Kamal Bashir,
Faculty of Medicine,
University of Sarajevo,
Sarajevo,
Bosnia and Herzegovina,
E-mail:*

Literatura

1. Wang SJ, et all. *A cost-benefit analysis of electronic medical records in primary care. AJ Med*, 2003; 114(5): 397-403.
2. Mašić I. *Mogućnost uvođenja novog elektronskog nosača podataka u BiH. Med Arh*, 1999; 53 (4, suppl. 3): 55-6.
3. Pašić A, Bešlagić Z. *Zakon o evidencijama u oblasti zdravstva, mogućnost razvoja zdravstveno informacijskog sistema i primjene automatske obrade podataka. Med Arh*, 1999; 53 (4, suppl. 3): 47-50.
4. Bemmel van JH, Musen MA. *Handbook of Medical Informatics*. Springer-Verlag, Heidelberg, Germany, 1997; 621.
5. Shortliffe EH, Perreault LE. *Medical Informatics. Computer Applications in Healthh Care and Biomedicine, second edition*. Springer-Verlag, Heidelberg, Germany, 2001; 854.
6. Bashir Omer Shakour K. *Minimalni setovi podataka u primarnoj zdravstvenoj zaštiti, Sarajevo*, 2007.

Instructions for the authors

All papers need to be sent to e-mail: balkanjournal@yahoo.com

Preparing the camera ready paper for Balkan Journal of Health Science

First Author¹, Second Author², Third Author³

¹ First affiliation, City, Country,

² Second affiliation, City, Country,

³ Third affiliation, City, Country.

Abstract

In this paper the instructions for preparing camera ready paper for the Journal are given. The recommended, but not limited text processor is Microsoft Word. Insert an abstract of 50-100 words, giving a brief account of the most relevant aspects of the paper. It is recommended to use up to 5 keywords.

Key words: Camera ready paper, Journal.

Introduction

In order to effect high quality of Papers, the authors are requested to follow instructions given in this sample paper. Regular length of the papers is 5 to 12 pages. Articles must be proofread by an expert native speaker of English language. Can't be accepted articles with grammatical and spelling errors.

Instructions for the authors

Times New Roman 12 points font should be used for normal text. Manuscript have to be prepared in a two column separated by 5 mm. The margins for A4 (210×297 mm²) paper are given in Table 1.

Table 1. Page layout description

Paper size	A4
Top and Bottom margin	20 mm
Left margin	20 mm
Right margin	18 mm
Column Spacing	5 mm

Regular paper may be divided in a number of sections. Section titles (including references and acknowledgement) should be typed using 12 pt fonts with **bold** option.

For numbering use Times New Roman number. Sections can be split in subsection, which should be typed 12 pt *Italic* option.

Figures should be one column wide. If it is impossible to place figure in one column, two column wide figures is allowed. Each figure must have a caption under the figure. For the figure captions 12 pt *Italic* font should be used. (1)

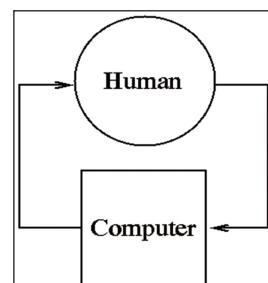


Figure 1. Text here

Conclusion

Be brief and give most important conclusion from your paper. Do not use equations and figures here.

Acknowledgements (If any)

These and the Reference headings are in bold but have no numbers.

References

1. Sakane T, Takeno M, Suzuki N, Inaba G. Behcet's disease. *N Engl J Med* 1999; 341: 1284-1291.
2. Stewart SM, Lam TH, Beston CL, et al. A Prospective Analysis of Stress and Academic Performance in the first two years of Medical School. *Med Educ* 1999; 33(4): 243-50.

Corresponding Author

Name Surname,

Institution, City,

Country,

E-mail