Pristup pacijentu sa glavoboljom u opštoj medicini

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Sažetak

Uvod. Glavobolje se definišu kao bol lokalizovan iznad orbitomeatalne linije. Dijagnostikuju se i leče nedovoljno.

Cilj rada. Ispitati koliko lekari u opštoj medicini znaju o dijagnostičkom i terapijskom pristupu glavoboljama i da li postoji razlika u odnosu na pol i region gde rade.

Metod. Na našem godišnjem skupu, Dani opšte medicine, održanom 30.03.2019. godine u Beogradu, realizovana je akreditovana provera znanja na temu Pristup pacijentu sa glavoboljom u opštoj medicini. Test koji je sadržao 50 pitanja o rešavanju kliničkih problema kod različitih tipova glavobolja, položen je sa >60% tačnih odgovora. Podaci su obradeni softverskim statističkim paketom SPSS 20. Statistička značajnost je definisana za nivo p<0,05.

Rezultati. Test je popunilo 432 lekara, sa 98,4% tačnih odgovora. Primognom stratifikovane terapije, migrenu leči 29,5% (p=0,746). Antiemetike ordinira 7,2% lekara. ... U odgovorima nema značajne razlike u odnosu na pol, ali su lekari iz uže Srbije dali više tačnih odgovora (p=0,005).

Zaključak. Lekari su pokazali visok nivo znanja o dijagnostičkom i terapijskom pristupu glavoboljama. Nedostaju znanja o glavoboljama uzrokovanim kranijalnim ili cervikalnim vaskularnim događajima.

Ključne reči: Glavobolja, dijagnostika, terapija, primarna zdravstvena zaštita.

Abstract

Introduction: Headaches are defined as the pain localized above the orbital-meatal line. They are often underdiagnosed and undertreated.

Objective: We wanted to find out how much general physicians (GPs) know about the diagnostic and treatment approach to headaches, and whether there was a difference in relation to their gender and regional location.

Method: At our annual meeting, General medicine days, held in Belgrade, March 30th, 2019, we organized the testing of the participants (GPs) on the subject of Approach to a patient with a headache in the general practice setting. The test had 50 questions with different clinical problems, concerning different types of headaches. It was successfully passed if 60% of the answers were correct. The data were processed with statistical software package SPSS 20. Statistical significance was defined at p<0.05 level.

Results: 432 GPs took the test and there were 98.4% of the correct answers. Stratified care approach used 29.5% (p=0.746) of the participants. Antiemetics were advised by 7.2% of GPs. Indomethacin as a diagnostic-therapeutic test was known to 38.4%. Corticosteroid therapy in giant cell arteritis was properly used by 57.7%. The answers to questions concerning vascular headaches got 56.9% of correct answers. Internal carotid artery dissection was correctly diagnosed by 31.7% (p=0.631). To diagnose an intracranial tumor, 40% said they needed MRI. The correct approach to the hypertensive crisis had 87.2%. Bacterial meningitis was correctly recognized by 83.3% of the participants. Headaches due to the use or discontinuation of some substances are successfully diagnosed and treated by 74.2%, and due to some medications 51.9%. There were no significant differences in their answers in relation to gender, but the physicians from Central Serbia gave more correct answers (p=0.005).

Conclusion: GPs showed high levels of knowledge concerning diagnosis and treatment of headaches. What is missing is the knowledge on the matter of headaches caused by cranial or cervical vascular events.

Keywords: Headaches, diagnosis, therapy, primary health care.

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Introduction

Headaches are defined as the pain localized above the orbital-orbital line. It's often a disease in itself, but very often it's a symptom of some other disease. They may be primary or secondary headaches.

Half to three-quarters of the adults (18-65 years) worldwide experienced a headache in the previous year. Among them, 30% reported they had a migraine. A headache lasting 15 or more days a month, every month, (chronic headache) is found in 1.7 – 4% of the world adult population. Almost every human being experienced it once in a lifetime. Headaches prevalence is 66%. Migraine is found in 14%-16%, tension headaches in 46%-78%, cluster headaches 0.1%-0.3%. A large number of people with headaches are never diagnosed or treated. Only 40% of migraine cases are diagnosed worldwide, and half of the people with headaches are self-medication. Headaches are underrated, insufficiently recognized, and inadequately treated all over the world. Despite regional variations, headache are a worldwide problem no matter the age, race, geographic and economic area. They are a burden to public health, due to disability and economic consequences to society, since they usually affect the working population.

A headache is the most common reason for visiting GP, whether as a main complaint, or a side one. Migraine and tension headaches are the most common sorts of headaches all over the world. They are a global problem because they affect people of all ages, races, social statuses, and geographic places (less so in the Far East).

Unawareness of the importance of headaches leads to circulus vitiosus: insufficient GP’s education leads to insufficient knowledge and inefficient treatment, which leads to an increase in the number of days in the sick leave and implies financial consequences to the health system. Clearly, better education would lead to better prevention and treatment, and therefore better outcomes for an individual and the society as a whole. So, it’s no wonder just a few countries have got data, on the national level, on the headache incidence (disease registers). Only 12% of all countries offer data on headache incidence in their annual reports.

Headaches are often not taken seriously because the attacks are usually temporary, not life-threatening to the patient and his surrounding. Patients, and even physicians, think of the headache as harmless and fleeting. Personal suffering, worse life quality of the patients and their families, huge financial expenses for the treatment, and lower salaries due to the sick leaves, are often overlooked. Besides suffering in repeated headache attacks, patients are in the state of constant fear of the new attacks; this predisposes them to other disorders; anxiety and depression are more common among persons with migraine than healthy individuals.
Cilj rada

Sagledati koliko lekari u opštoj medicini znaju o dijagnostičkom i terapijskom pristupu glavoboljama kod svojih pacijenata i da li postoji razlika u odnosu na pol i region u Srbiji gde lekari rade.

Metod

Na godišnjem skupu Dani opšte medicine, održanom 30.03.2019. godine u Beogradu, akreditovan je test Pristup pacijentu sa glavoboljom u opštoj medicini sa 50 pitanja. Test su sastavili prof. dr Svetlana Simić i mr sc. Miloranka Petrov Kiurski i korišćen je kao instrument istraživanja Sekcije opšte medicine SLD. U ovom radu analizirani su odgovori svih 50 pitanja, popunjenih testova. Pitanja su se odnosila na rešavanje kliničkih problema kod pacijenata sa različitim tipovima glavobolja, a rešavan je zaokruživanjem ponuđenih odgovora. Uspešno je položio test svaki lekar koji je tačno odgovorio na 60% pitanja. Odgovori su analizirani u odnosu na pol lekara i region Srbije gde ispitivani lekari rade. Dobijeni podaci obrađeni su metodom deskriptivne statistike i predstavljeni su kao frekvencije (%), a χ² test i jednofaktorska analiza ANOVA su korišćeni za merenje razlike između varijabli. Odgovori iz upitnika obrađeni su softverskim statističkim paketom SPSS 20. Statistička značajnost je definisana za nivo p<0,05.

Rezultati

Test je popunilo 432 lekara, najviše ženskog pola (88,4%), a u odnosu na region Srbije gde rade najviše ih je bilo iz uže Srbije (44,7%), (Tabela 1).

Objective

We wanted to find out how much general physicians (GPs) know about the diagnostic and treatment approach to headaches, and whether there was a difference in relation to their gender and region of Serbia where they worked.

Method

At our annual meeting, General medicine days, held in Belgrade, March 30th, 2019, we accredited the test on the subject of Approach to a patient with a headache in the general practice setting with 50 questions. The test was created by Svetlana Simić, MD, Ph.D., and Miloranka Petrov Kiurski, MD, GP, MSc and it was used as a research tool for the needs of the Section of General Medicine of the Serbian Medical Society. We analyzed the answers to all fifty questions. The questions referred to solving clinical problems in patients with different types of headaches, by circling one of the offered answers. The test was passed if, at least, 60% of the answers were correct. The answers were analyzed in relation to GP`s gender and Serbian region where they worked. The data were processed using descriptive statistical method and presented as frequencies (%), χ² test and one-way ANOVA were used to measure differences between variables. All the answers were processed with software statistical package SPSS 20. Statistical significance was defined at p<0.05 level.

Results

432 GPs took the test, and the majority were women (88,4%), and in relation to the Serbian region where they worked, the majority were from Central Serbia (44,7%), (Table 1).

Tabela 1. Sociodemografske karakteristike ispitanika
Table 1. Sociodemographic features of the respondents

| Sociodemografske karakteristike ispitanika/ Sociodemographic features of the respondents | N   | %   |
|---------------------------------------------|-----|-----|
| **Pol/Gender**                              |     |     |
| Muški/Male                                  | 50  | 11,6|
| Ženski/Female                               | 382 | 88,4|
| **Region/Region**                           |     |     |
| Beograd/Belgrade                            | 134 | 31,0|
| Uža Srbija/Central Serbia                  | 193 | 44,7|
| Vojvodina                                   | 96  | 22,2|
| Van Srbije/Out of Serbia                   | 9   | 2,1 |
Kako je za uspešno rešavanje testa bilo potrebno 60% tačnih odgovora, test je položio 98,4% lekara (Grafikon 1).

Prvih 19 pitanja u testu odnosila su se na rešavanje problema dijagnostike i terapijskog pristupa, kroz prikaze slučajeva pacijenata sa primarnim glavoboljama: migrena, glavobolje tenzionog tipa, trigeminalne autonomne glavobolje i ostale primarne glavobolje. Na postavljena pitanja 74,4% ispitivanih lekara dalo je tačne odgovore (Tabela 2).

The first 19 questions referred to problem solving - diagnosis and treatment approach. They were presented as case reports of patients with primary headaches: migraine, tension headache, trigeminal autonomic headache, and other primary headaches. There were 74.4% of the participants who gave correct answers to these questions (Table 2).

**Grafikon 1.** Broj tačnih odgovora na testu

**Graph. 1.** Percentage of correct answers on the test

**Table 2.** Tačni odgovori na pitanja o rešavanju kliničkih problema pacijenata sa primarnim glavoboljama

**Table 2.** Clinical problems solving of the patients with primary headaches

| Pol/Gender | Tačni odgovori (%) | Regionalni podaci | Ukupno/Tot| Statistička značajnost/Significance |
|-------------|---------------------|-------------------|-----------|------------------------------------|
| Muško/Male | 98                  | 96,3              | 94,8      | 88,9          | p= 0,715 | p= 0,578 |
| Žensko/Female | 74                  | 80,4              | 86,0      | 84,9          | p= 0,347 | p= 0,000 |
| Beograd/Belgrade | 58                  | 62,3              | 56,3      | 55,6          | p= 0,648 | p= 0,360 |
| Uža Srbija/Central Serbia | 26                  | 29,8              | 25,9      | 29,2          | p= 0,746 | p= 0,183 |
| Vojvodina | 74                  | 70,7              | 79,2      | 66,7          | p= 0,769 | p= 0,250 |
| Van Srbije/Out of Serbia | 8                  | 7,1               | 7,3       | 8,3           | p= 0,989 | p= 0,627 |
| Ukupno/Tot | 90                  | 94,8              | 93,3      | 92,7          | p= 0,260 | p= 0,604 |
Manje tačnih odgovora je kod 4, 6, 14 i 19. pitanja. Pitajte broj 4 odnosilo se na strategiju lečenja migrene bez auren kod pacijentkinje u prikazu. Da se primenjuje strategija stratifikovanog terapija, znalo je 29,4% lekara (Tabela 3). U tačnim odgovorima nije bilo statistički značajne razlike u odnosu na pol (p=0,746) i region gde lekari rade (p=0,183) (Tabela 2).

There were fewer correct answers to questions number 4, 6, 14 and 19. Question number 4 referred to migraine without aura treatment strategy, in a patient in the case report. Only 29.4% of the participants knew about the stratified therapy approach (Table 3). Analyzing correct answers we found no statistically significant difference, in relation to gender (p=0.746) and the working region (p=0.183), (Table 2).

### Tabela 3. Strategija lečenja migrene

| Odgovori/Answers | Pol/Gender (%) |
|------------------|---------------|
|                  | Muški/Male    | Ženski/Female | Ukupno/Total |
| a                | 26            | 29,8          | 29,4         |
| b                | 68            | 69,9          | 69,7         |
| c                | 0             | 0             | 0            |
| Više odgovora    | 6             | 0,3           | 0,9          |

a. Primenu strategiju stratifikovane terapije davanjem terapije u odnosu na jačinu/težinu glavobolje  
*Apply stratified therapy in accordance with headache severity*

b. Primenu strategiju korak po korak, sa primenom najpre nespecifične a potom specifične antimigranske terapije.  
*Apply the step-by-step strategy, at first giving non-specific and then specific anti-migraine therapy*

c. Bazirati se na nefarmacološku lečenje.  
*Focus on non-pharmacological treatment*

U zbrinjavanju akutnog ataka, odnosno napada migrene antiemetike bi ordiniralo samo 7,2% lekara (Tabela 4). Nema statistički značajne razlike u odnosu na pol ispitanika i region Srbije gde rade (p=0,989 i p=0,627), (Tabela 2).

When treating acute migraine attack, 7.2% of the GPs would use antiemetics (Table 4). There was no statistically significant difference in relation to gender and the Serbian region where they worked (p=0.989 and p=0.627), (Table 2).
Table 4. The use of antiemetics in the management of acute migraine attack

| Odgovori/Answers | Pol/Gender (%) | Muški/Male | Ženski/Female | Ukupno/Total |
|------------------|----------------|------------|--------------|--------------|
| a                |                | 88         | 88,5         | 88,4         |
| b                |                | 4          | 4,2          | 4,2          |
| c                |                | 8          | 7,1          | 7,2          |
| Više odgovora/More answers |                | 0          | 0,3          | 0,2          |

a. Da, samo kada je prisutna mučnina i povraćanje / Yes, only when there’s nausea and vomiting
b. Ne, zbog mogućih diskinezija / No, due to possible dyskinesia
c. Da, jer se u ataku migrene javlja gastropareza / Yes, because there’s gastroparesis in the migraine attack

Table 5. Physicians’ opinions on the diagnostic-therapeutic test for paroxysmal hemicrania

| Odgovori/Answers | Pol/Gender (%) | Muški/Male | Ženski/Female | Ukupno/Total |
|------------------|----------------|------------|--------------|--------------|
| a                |                | 1          | 1            | 0,9          |
| b                |                | 60         | 58,9         | 59           |
| c                |                | 36         | 39           | 38,7         |
| Više odgovora/More answers |                | 4          | 1            | 1,4          |

a. Eliminaciono-reopozivna dijeta / Elimination diet
b. Sumatriptan potkožno / Subcutaneous application of sumatriptan
c. Indometacinski test / Indomethacin test

Table 6. When to initiate corticosteroid therapy in giant cell arteritis

Kada započeti sa kortikosteroidnom terapijom kod arteritis džinovskih čelija (Pitanje 19), pravilno je odgovorilo 57,4% lekara (Tabela 6). Nije bilo statistički značajne razlike u odnosu na posmatrane parametre (pol: p=0,918 i region: p=0,124) (Tabela 2).

When to initiate corticosteroid therapy in giant cell arteritis (question 19) was answered correctly by 57.4% of the GPs. (Table 6) There was no statistically significant difference in relation to followed parameters (gender, p=0.918, and region, p=0.124) (Table 2).
Tabela 6. Kada započeti kortikosteroidnu terapiju kod arteritisa džinovskih ćelija

| Odgovori/Answers | Pol/Gender (%) | Statistička značajnost/Significance |
|------------------|----------------|-------------------------------------|
|                  | Muški/Male | Ženski/Female | Ukupno/Total | P value | Pol/ Gender | Region/ Region |
| a                | 44        | 41,6         | 41,9         | p= 0,010 | p= 0,000 |
| b                | 56        | 57,6         | 57,4         | p= 0,631 | p= 0,659 |
| c                | 0,8       | 0,7          |              | p= 1,000 | p= 0,002 |

a) Nakon potvrde dijagnoze patohistološkim nalazom, putem biopsije a. temporalis
After performing a temporal artery biopsy and confirming the diagnosis with histopathological findings
b) Čim se postavi značajna klinička sumnja na arteritis džinovskih ćelija i uzme uzorak krvi za analize
As soon as there`s clinical suspicion of giant cell arteritis and blood tests are done
c) Kada su iscrpljene sve druge terapijske mogućnosti
When all other therapeutic options are exhausted

Na pitanja koja su se odnosila na glavobolje koje se pripisuju kranialnim ili cervikalnim vaskularnim poremećajima (pacijenti sa akutnim ishemijskim moždanim udarom - AIMU, disekcijom unutrašnje karotidne arterije i subarahnoidalnom hemorrhagijom), dobijen je iznenadjuće mali broj tačnih odgovora - 56,9% (Tabela 7).

The questions concerning the headaches due to cranial or cervical vascular disorders (patients with Acute Ischemic stroke - AIS, dissection of the internal carotid artery, and subarahnoidal hemorrhage) were answered surprisingly low, with 56.9% of correct answers (Table 7).

Tabela 7. Glavobolje koje se pripisuju kranijalnim ili cervikalnim vaskularnim poremećajima

| Redni Broj | Pitanja/ Index | Tačni odgovori/Answers (%) | Statistička značajnost/Significance |
|------------|----------------|---------------------------|-------------------------------------|
|            |                | Pol/Gender                | Region/Region                       | P value |
|            |                | Muško/ Male | Žensko/ Female | Beograd/ Belgrade | Uža Srbija/ Central Serbia | Vojvodina/ Vojvodina | Van Srbije/ Ost Srbija | Ukupno/ Total % | Pol/ Gender | Region/ Region | P value |
| 20         | 58             | 75,6         | 77,4         | 77,8         | 55,2         | 88,9         | 73,6         | p= 0,010 | p= 0,000 |
| 21         | 34             | 29,3         | 26,9         | 29,5         | 34,4         | 33,3         | 29,9         | p= 0,631 | p= 0,659 |
| 22         | 78             | 72,8         | 73,9         | 74,6         | 69,8         | 77,8         | 73,3         | p= 0,556 | p= 0,816 |
| 23         | 40             | 30,6         | 27,6         | 37,3         | 25           | 44,4         | 31,7         | p= 0,249 | p= 0,103 |
| 24         | 40             | 38,7         | 27,6         | 46,1         | 42,7         | 11,1         | 38,9         | p= 1,000 | p= 0,002 |
| 25         | 36             | 31,9         | 26,1         | 33,2         | 38,5         | 33,3         | 32,4         | p= 0,676 | p= 0,305 |
| 26         | 88             | 85,1         | 88,8         | 83,9         | 84,4         | 77,8         | 85,4         | p= 0,798 | p= 0,490 |
| 27         | 86             | 88,5         | 91,0         | 85,5         | 88,5         | 100          | 88,2         | p= 0,704 | p= 0,286 |
| Ukupno/ Total | 57,5         | 56,9         | 55,6         | 58,7         | 55,1         | 58,3         | 56,9         | |

Primenom terapije, za koliko treba smanjiti povisjen krvni pritisak znalo je samo 29,9% lekara (Tabela 8). Nije bilo statistički značajne razlike u pogledu pola (p=0,631) i regiona gde lekari rade (p=0,659) (Tabela 7).

How much blood pressure should be lowered knew only 29.9% of the GPs. (Table 8) There was no statistically significant difference in gender (p=0,631) and working region (p=0,659) (Table 7).
Tabela 8. The target blood pressure value in acute ischemic stroke (AIS)

| Odgovori/Answers | Muški/Male | Ženski/Female | Ukupno/Total |
|------------------|------------|--------------|--------------|
| a                | 52         | 60,7         | 59,7         |
| b                | 34         | 29,3         | 29,9         |
| c                | 8          | 5,8          | 6            |
| Više odgovora    | 6          | 4,2          | 4,4          |

- a. BP follow up (unless aortic dissection, acute myocardial infarction, pulmonary edema, hypertensive encephalopathy, acute kidney failure are suspected or confirmed)
- b. снижение TA za 10%-15% Lower BP for 10%-15%
- c. снижение TA za 15%-20% Lower BP for 15%-20%
- d. снижение TA do normalnih vrednosti od 140/90 mmHg Lower BP to optimal value of 140/90 mmHg

Based on the clinical presentation, given in the case report, only 31.7% of GPs correctly suspected an emergency, such as internal carotid artery dissection (Table 9) and there was no statistically significant difference in the given answers (gender, p=0.631, region p=0.659) (Table 7).

Tabela 9. Working diagnosis based on the clinical presentation from the case report

| Odgovori/Answers | Muški/Male | Ženski/Female | Ukupno/Total |
|------------------|------------|--------------|--------------|
| a                | 24         | 16,5         | 17,4         |
| b                | 14         | 30,1         | 28,2         |
| d                | 40         | 30,9         | 31,9         |
| e                | 14         | 17,8         | 17,4         |
| Više odgovora    | 10         | 4,7          | 5,1          |

- a. Cervical syndrome / Cervical syndrome
- b. Trigeminal neuralgia / Trigeminal neuralgia
- c. Sensitiva aura / Sensitiva aura
- d. Dissekcija unutrašnje karotidne arterije / Internal carotid artery dissection
- e. Karotidinija / Carotidynia

Kod izbora dijagnostičke procedure za razrešavanje ove kliničke slike, bilo je malo tačnih odgovora - 38,9%, (Tabela 10). Nije bilo značajne razlike u pogledu pola (p=1,000), ali su lekari iz Beograda dali manje tačnih odgovora u odnosu na lekare iz uže Srbije (p=0,002) (Tabela 7).
**Table 10.** Diagnostic procedures for final diagnosis in a patient with internal carotid artery dissection

| Odgovori/Answers | Pol/Gender (%) |
|------------------|----------------|
|                  | Muški/Male     | Ženski/Female | Ukupno/Total |
| a                | 28             | 19,1          | 20,1          |
| b                | 40             | 38,7          | 38,9          |
| c                | 30             | 39,3          | 38,2          |
| Više odgovora/More answers | 2        | 2,9           | 2,8           |

a. RTG vratne kičme / Cervical spine X-ray  
b. Ultrazvučna i radiološka angiografsku obradu i ispitivanje hemostaznih mehanizama / Ultrasound, angiography, hemostasis examination  
c. Doppler karotida / Carotid Doppler

Da je antikoagulantna i simptomska terapija pravilan izbor u lečenju, navelo je samo 32,4% ispitanika (Tabela 11). Nije bilo statistički značajne razlike u pogledu pola lekara (p=0,676) niti u pogledu regiona (p=0,305).

**Table 11.** Therapeutic options in a patient with internal carotid artery dissection

| Odgovori/Answers | Pol/Gender (%) |
|------------------|----------------|
|                  | Muški/Male     | Ženski/Female | Ukupno/Total |
| a                | 28             | 19,1          | 20,1          |
| b                | 40             | 38,7          | 38,9          |
| c                | 30             | 39,3          | 38,2          |
| Više odgovora/More answers | 2        | 2,9           | 2,8           |

a. Antikoagulantna i simptomska terapija / Anticoagulant and symptomatic therapy  
b. Samo analgetike i mirovanje / Just analgesics and bed rest  
c. Fizikalna terapija / Physical therapy

Anticoagulant and symptomatic therapy, as the right treatment choice, were recognized only by 32.4% of the participants (Table 11). There was no statistical difference in GPs gender (p=0.676), or working region (p=0.305).

Kod pitanja koja su se odnosila na glavobolje koje se pripisuju nevaskularnim intrakranijalnim poremećajima, kroz prikaze pacijentkinje sa tumorom hipofize i pacijenta sa intrakranijalnom neoplazmom, bilo je 87,9% tačnih odgovora (Tabela 12).

To the questions concerning headaches due to the non-vascular intracranial disorders, presented in the case reports of a patient with hypophysis tumor and a patient with intracranial neoplasm, we got 87.9% of the correct answers. (Table 12).
Tabela 12. Glavobolje koje se pripisuju nevaskularnim intrakranijalnim poremećajima
Table 12. Headaches attributed to nonvascular intracranial disorders

| Redni broj | Tačni odgovori/Correct answers (%) | Statistička značajnost/Significance |
|------------|------------------------------------|-----------------------------------|
|            | Muško/ Male | Žensko/ Female | Beograd/ Belgrade | Uža Srbija/ Centralna Serbia | Vojvodina/ Vojvodina | Van Srbije/ Beyond Serbia | Ukupno/ Total % | Pol/ Gender | Region/ Region | P value |
| 28         | 94          | 92,7          | 93,3          | 93,3          | 94,8          | 55,6          | 92,8          | p= 1,000 | p= 0,000 |         |
| 29         | 90          | 92,7          | 91,0          | 89,6          | 98,9          | 100           | 92,4          | p= 0,651 | p= 0,029 |         |
| 30         | 100         | 95,8          | 93,3          | 98,5          | 96,9          | 88,9          | 96,3          | p= 0,309 | p= 0,099 |         |
| 31         | 96          | 98,7          | 97,8          | 98,5          | 100           | 88,9          | 98,4          | p= 0,302 | p= 0,055 |         |
| 31         | 90          | 95,8          | 94,8          | 94,8          | 96,9          | 88,9          | 95,1          | p= 0,119 | p= 0,689 |         |
| 33         | 48          | 39,0          | 35,8          | 31,6          | 60,4          | 66,7          | 40,1          | p= 0,293 | p= 0,000 |         |
| 34         | 98          | 98,4          | 99,3          | 97,9          | 97,9          | 100           | 98,4          | p= 0,557 | p= 0,383 |         |
| Ukupno/ Total | 88          | 87,9          | 87,1          | 86,3          | 92,4          | 84,1          | 87,9          |         |         |         |

Kod pacijenta sa intrakranijalnom neoplazmom, 40% lekara se radi dijagnostike ispravno opredelilo za MRI i MRA endokranijuma (Tabela 13). Nije bilo statistički značajne razlike u pogledu pola (p=0,293), ali su lekari iz Beograda (p=0,001) i lekari iz uže Srbije (p=0,000) dali više tačnih odgovora od lekara iz Vojvodine (Tabela 12).

Tabela 13. Dijagnostičke procedure radi postavljanja konačne dijagnoze kod pacijenta sa intrakranijalnom neoplazmom
Table 13. Diagnostic procedures offered for making a final diagnosis in a patient with intracranial neoplasm

| Odgovori/Answers | Pol/ Gender (%) |
|------------------|----------------|
| Muški/Male       | Ženski/Female  | Ukupno/Total |
| b                | 46             | 52,9         | 52,1         |
| c                | 48             | 39           | 40           |
| d                | 4              | 3,4          | 3,5          |
| Više odgovora/More answers | 2 | 4,7 | 4,4 |

a. Biopsiju mozga / Brain biopsy
b. Nativni CT mozga / Native CT brain scan
c. MRI i MRA endokranijuma / MRI and MRA of endocranium
d. Lumbaralna punkcija / Spinal tap

Za dijagnostički i terapijski pristup kod pacijentkinje sa glavoboljom uzrokovano hipertenzivnom krizom, ispravno se opredelilo 87,2% lekara (pitanja 35, 36, 37 i 38) i nije bilo statistički značajne razlike u odnosu na pol lekara i region (Tabela 14).

Tabela 14. Dijagnostičke procedure radi postavljanja konačne dijagnoze kod pacijentkinje sa glavoboljom uzrokovano hipertenzivnom krizom
Table 14. Diagnostic procedures offered for making a final diagnosis in a patient with a headache, due to a hypertensive crisis

| Odgovori/Answers | Pol/ Gender (%) |
|------------------|----------------|
| Muški/Male       | Ženski/Female  | Ukupno/Total |
| b                | 46             | 52,9         | 52,1         |
| c                | 48             | 39           | 40           |
| d                | 4              | 3,4          | 3,5          |
| Više odgovora/More answers | 2 | 4,7 | 4,4 |

a. Biopsiju mozga / Brain biopsy
b. Nativni CT mozga / Native CT brain scan
c. MRI i MRA endokranijuma / MRI and MRA of endocranium
d. Lumbaralna punkcija / Spinal tap

The appropriate diagnostic and therapeutic approach in a patient with a headache, due to a hypertensive crisis were chosen by 87.2% of the participants (questions 35, 36, 37, and 38). There was no statistically significant difference in gender and working region (Table 14).
Out of the total number of the participants, 83.3% correctly answered the questions about diagnostics and therapy in patients with bacterial meningitis (Table 15). There was no statistically significant difference in gender, but the GPs from Central Serbia made better judgment calls concerning clinical features indicative of meningitis (question 40) than their Belgrade colleagues. The GPs from Central Serbia were also better than their Belgrade and Vojvodina colleagues in noticing the most important differences between meningitis and subarachnoidal hemorrhage (SAH) (question 41). The “red flag” symptoms, indicative of the potentially dangerous headache, were better recognized by the Serbian physicians than their out of Serbia colleagues (question 42) (Table 15).

Tabela 14. Tačni odgovori na pitanja koja se odnose na glavobolje koje se pripisuju poremećajima homeostaze

Table 14. Headaches attributed to homeostasis disorders

| Redni broj Pitanja/ Index | Tačni odgovori/Correct answers (%) | Statistička značajnost/ Significance |
|---------------------------|-----------------------------------|-------------------------------------|
|                           | Pol/Gender                        | Region/Region                       | P value |
|                           | Muško/ Male                       | Žensko/ Female                      | Beograd/ Belgrade | Uža Srbija/ Central Serbia | Vojvodina/ Vojvodina | Van Srbije/ Beyond Serbia | Ukupno/ Total (%) | Pol/Gender | Region/ Region | P value |
| 35                        | 84                                 | 89,3                               | 89,6             | 88,1             | 87,5             | 79,4                      | 87,2 | p= 0,356 | p= 0,645 |
| 36                        | 92                                 | 87,2                               | 89,6             | 84,5             | 93,8             | 87,7                      | 87,2 | p= 0,479 | p= 0,078 |
| 37                        | 82                                 | 85,9                               | 82,8             | 84,9             | 88,5             | 85,4                      | 85,7 | p= 0,544 | p= 0,442 |
| 38                        | 90                                 | 85,1                               | 88,1             | 85,5             | 82,3             | 88,9                      | 85,7 | p= 0,521 | p= 0,483 |
| Ukupno/ Total %           | 87                                 | 87,2                               | 88,3             | 85,9             | 88,0             | 88,9                      | 87,2 |                      |              |

Od ukupnog broja ispitivanih lekara, 83,3% uspešno je rešilo pitanja u vezi sa dijagnostikom i terapijom kod pacijen- ta sa bakterijskim meningitisom (Tabela 15). U odnosu na pol nema statistički značajne razlike, dok su lekari iz uže Srbije bolje od lekara iz Beograda procenili koja klinička slika ukazuje da treba posumnjati na meningitis (pitanje 40), a lekari iz uže Srbije su bolje nego lekari iz Beograda i Vojvodine uočili koje su najbitnije razlike između meningitis i subaraknoidalne hemoragije (SAH) (pitanje 41). Koji simptomi (“crvene zastavice”) ukazuju na potencijalno opasan uzrok glavobolje znali su bolje lekari iz Srbije od lekara van Srbije (pitanje 42) (Tabela 15).

Tabela 15. Glavobolje koje se pripisuju infekciji

Table 15. Headaches related to infectioners

| Redni broj Pitanja/ Index | Tačni odgovori/Correct answers (%) | Statistička značajnost/ Significance |
|---------------------------|-----------------------------------|-------------------------------------|
|                           | Pol/Gender                        | Region/Region                       | P value |
|                           | Muško/ Male                       | Žensko/ Female                      | Beograd/ Belgrade | Uža Srbija/ Central Serbia | Vojvodina/ Vojvodina | Van Srbije/ Beyond Serbia | Ukupno/ Total (%) | Pol/Gender | Region/ Region | P value |
| 39                        | 80                                 | 79,3                               | 76,9             | 81,9             | 76,0             | 100                      | 79,4 | p= 1,000 | p= 0,258 |
| 40                        | 90                                 | 94,8                               | 97,0             | 91,2             | 96,9             | 88,9                      | 94,2 | p= 0,260 | p= 0,040 |
| 41                        | 70                                 | 71,9                               | 79,1             | 63,2             | 80,2             | 55,6                      | 71,8 | p= 0,877 | p= 0,001 |
| 42                        | 84                                 | 87,4                               | 82,1             | 88,6             | 93,8             | 55,6                      | 87,0 | p= 0,614 | p= 0,002 |
| Ukupno/ Total %           | 81                                 | 83,6                               | 84,4             | 81,2             | 86,7             | 75                       | 83,3 |                      |              |
Питања од броја 43 до 50 односила су се на дيجагностику и терапију глувоболја, које се приписују супстанијама или њиховом обустави. На постављена питања 74,24% испитаних лекара дало је тачне одговаре (Табела 16).

The questions from number 43 to 50 were about the diagnostics and therapy of the headaches due to medication use or discontinuation. There were 74.21% of the participants who gave correct answers to these questions (Table 16).

Таблица 16. Таћни одговори на питања која се однose на глувоболје koje се приписују супстанијама или њиховом обустави
Table 16. Headaches related to medication or tie-up

| Redni broj Pitanja/Index | Tačni odgovori/Correct answers (%) | Statistička značajnost/Significance |
|--------------------------|-----------------------------------|-----------------------------------|
| Muško/Male | Žensko/Female | Beograd/ Belgrade | Uža Srbija/ Central Serbia | Vojvodina/ Vojvodina | Van Srbije/ Beyond Serbia | Ukupno/ Total (%) | Pol/Gender | Region/Region |
| 39 | 80 | 79,3 | 76,9 | 81,9 | 76,0 | 100 | 79,4 | p= 1,000 | p= 0,258 |
| 40 | 90 | 94,8 | 97,0 | 91,2 | 96,9 | 88,9 | 94,2 | p= 0,260 | p= 0,040 |
| 41 | 70 | 71,9 | 79,1 | 63,2 | 80,2 | 55,6 | 71,8 | p= 0,877 | p= 0,001 |
| 42 | 84 | 87,4 | 82,1 | 88,6 | 93,8 | 55,6 | 87,0 | p= 0,614 | p= 0,002 |
| Ukupno/ Total % | 81 | 83,6 | 84,4 | 81,2 | 86,7 | 75 | 83,3 |

Da treba raditi допунску дижагностiku код глувоболја која се први пут јавила код шеснаестогодишњег децака, иако су општи фiziкални налаз, налаз по системима, као и нерволошки налаз и психички статус били uredni (питање 43), tvrdilo je 39,6% лекара jer se радио о новонасталој глувоболји (Табела 17).

Additional diagnostics in a 16-year-old boy with a first-time headache (question 43), although his physical exam was normal, would have been ordered by 39.6% of the participants, because it was the new-onset headache (Table 17).

Таблица 17. Одговари на питање да ли треба спроводити допунска испитивања код пацијента иако су сви налази били uredнi
Table 17. Answers to the question of whether additional diagnostics should be performed in a patient even though his health findings were good

| Одговори/Answers | Muški/Male | Žensки/Female | Ukupno/Total |
|------------------|------------|--------------|--------------|
| a                | 38         | 39,8         | 39,6         |
| b                | 44         | 29,6         | 31,3         |
| c                | 18         | 29,6         | 28,2         |
| Više odgovora/More answers | 0         | 1             | 0,9          |

a. Да, ради се о новонасталој глувоболји / Yes. It’s a new-onset headache.
b. Не, анамnestички подаци упућују на дијагнозу коja не захтева далje истраживање/No, his illness history indicates he doesn’t require additional diagnostics.
c. Не, јер су соматски, нерволошки и психички статус uredнi/No, because his physical exam findings were normal

У добијеним одговорима није било статистички значајне разлике у односу на пол испитаника и регију у Србији где лекари рade (Табела 16).

Kod lekara je постојала и дилема око терапијског приступа код глувоболје коja се јавила при обустави кофеина (питање 45), односно да ли у оквиру терапије треба пацијенту дати 100 g кофеина како би глувоболја престала након сат времена. Правиран терапијски приступ имало је 47,7% (Табела 18). Разлика у одговорима у односу на пол није била статистички значајна, али је зnačajno više lekara iz uže Srbije (p=0,015) u odnosu na lekare iz Vojvodine прavilno razmišljalo (Табела 16).

There were no statistically significant differences in gender and working region (Table 16).

There was a therapeutic dilemma in some GPs concerning the headache due to the discontinuation of coffee consumption (question 45). The dilemma was whether the patient should have been given 100g of caffeine, in order to stop the headache in an hour’s time. The correct therapeutic approach had 47.7% of the participants (Table 18). There was no statistically significant difference in gender, but the GPs from Central Serbia (p=0.015) had significantly better reasoning than their colleagues from Vojvodina (Table 16).
Approach to a patient with a headache in the general practice setting

Tabela 18. A therapeutic approach to a headache due to caffeine withdrawal

| Odgovori/Answers | Pol/Gender (%) |
|------------------|----------------|
|                  | Muški/Male     | Ženski/Female | Ukupno/Total |
| a                | 2              | 0,3           | 0,5          |
| b                | 38             | 53,1          | 51,4         |
| c                | 60             | 46,1          | 47,7         |
| Više odgovora/More answers | 0              | 0,5           | 0,4          |

a. Da. Obavezno je kupirati bol / Yes. It’s compulsory to treat the pain.
b. Nećemo dati ništa, glavobolja će prestati u roku od sedam dana od potpune obustave kofeina/We`ll give nothing since the headache will go away on its own in seven days.
c. Treba dati simptomatsku terapiju, ali ne lek sa sadržajem kofeina/Symptomatic therapy should be given, but not the medication containing caffeine

A headache due to medication overuse (analgesics i.e.) in patients with primary headaches (question 46) was recognized by 51.9% of the GPs (Table 19).

Tabela 19. Answers about the cause of medication-overuse headache

| Odgovori/Answers | Pol/Gender (%) |
|------------------|----------------|
|                  | Muški/Male     | Ženski/Female | Ukupno/Total |
| a                | 44             | 42,7          | 42,8         |
| b                | 46             | 52,6          | 51,9         |
| c                | 8              | 3,7           | 4,2          |
| Više odgovora/More answers | 2              | 1             | 1,1          |

a. Kod svih pacijenata koji uzimaju velike količine analgetika/In all the patients overusing analgesics.
b. Kod pacijenata koji boluju od primarne glavobolje a uzimaju veće količine analgetika/In patients suffering from primary headaches and overusing analgesics.
c. Kod pacijenata koji pored glavobolje imaju i neku drugu hroničnu bolest/In patients who suffer from some other disease besides headaches.

Razlika u odgovorima u odnosu na pol nije bila statistički značajna, ali je znatno više lekara iz uže Srbije (p=0,005) u odnosu na lekare iz Beograda, dalo više tačnih odgovora (Tabela 16).

Discussion

Headaches are one of the most common reasons for visiting a doctor’s office, whether as a chief complaint or along with other health problems. A great many remain undiagnosed. A huge British study, which included a lot of participants found 70% of the headaches are not classified, at all, 24% are diagnosed as primary, and 6% as secondary. In our research only 1.6% of the GPs didn’t pass the test. To
Questions on primary headaches, 74.44% of the participants gave correct answers. According to the Canadian Headache guidelines, migraines are the most common types of headaches in primary health care and they are underdiagnosed and undertreated. In our study, there were fewer correct answers on the migraine without aura treatment (29.5%). In similar research, in Turkey, only 8.3% of the participants diagnosed migraine in their offices, and 55.6% said their academic education on migraine wasn’t sufficient. An encompassing migraine therapy includes lifestyle changes, avoiding headache triggers, acute and prophylactic therapy, and patient’s education on migraine. When to start corticosteroids in giant cell arteritis was answered correctly by 57.7% of the participants. Alzahrani’s study showed half of the physicians in their study were lacking knowledge in correct headaches treatment. His study showed primary care physicians needed more education on headache treatment.

Steiner and al. suggest 90% of headaches should be resolved in primary health care but with the necessary education. They say such a model would enable the remaining 9% to be treated on the secondary health care level and 1% on the tertiary level. GPs must recognize clinical symptoms, so-called “red flags” identifying life-threatening headaches. In our research, 87.0% of the GPs recognized these “red flag” symptoms, indicating potentially life-threatening headaches.

Although primary headaches are the most common, one of the biggest challenges is diagnosing secondary headaches.11

Analyzing correct answers for the different types of headaches we found a surprisingly low percentage of GPs (56.9%) who gave correct answers to questions about the headaches due to cranial or cervical vascular events. Although these are the most common secondary headaches in general practice. How much high blood pressure should be lowered, using medications, knew only 29.9% of GPs although there are the National guidelines for diagnosing and treatment of ischemic stroke. Based on the clinical features in the case report, only 31.71% of the GPs correctly suspected an emergency such as internal carotid artery dissection. There were few correct answers (38.9%) on the subject of diagnostic procedures that would resolve the case. Only 32.4% found anticoagulant and symptomatic therapy as the right choice. These results indicate there’s a need for further education of the GPs, so the patients with emergencies would receive proper medical care and relieve secondary and tertiary health levels.

The headaches caused by medication overuse are the most common chronic headaches with a prevalence of 1%-2% worldwide. Whether these types of headaches appear in patients with primary headaches who overuse analgesics knew 51.9% of our participants. The majority of the patients with occasional tension headaches and migraines self-medicate with OTC painkillers, never consulting their GPs. It’s one of the reasons why medication-overuse headaches are so frequent.
cijom 1%-2% u svetu\textsuperscript{13}. Da se ove glavobolje javljaju kod pacijenata koji boluju od primarne glavobolje a uzimaju veće količine analgetika, u ovom istraživanju znalo je 51,9\% leka-
ra. Većina pacijenata koja boluje od epizodičnih glavobolja
tenzionog tipa i migrena se leći upotrebo analgetika sa re-
žimom izdavanja bez lekarskog recepta, bez konsultacije sa
svojim lekarom, zbog čega su česte glavobolje prekomerne
upotrebe medikamenata\textsuperscript{14}.

U pogledu upućivanja na dopunsku dijagnostiku, kod
glavobolje uzrokovane nevaskularnim intrakranijalnim pore-
mećajem, u našem istraživanju 40\% lekara se ispravno opre-
delilo za MRI i MRA endokranijuma U istraživanju Minena
i sar. kod 74,7\% lekara je glavobolja sa neurološkim simpto-
mima bila glavni razlog upućivanja na magnetnu rezonanciju,
Manje od 50\% se izjasnilo da bi uputili pacijenta na magnetnu
rezonanciju glave kod novonastale glavobolje, kod one koja
ne odgovara na terapiju ili glavobolje koja se pogoršava\textsuperscript{15}.

Zaključak

Ispitivani lekari su ukupno na testu pokazali visok nivo
znanja o dijagnostičkom i terapijskom pristupu glavobolja-
ma, ali malo znanja o glavoboljama koje se pripisuju krani-
jalnim i cervikalnim vaskularnim događajima.

Additional diagnostics in the headaches caused by non-
vascular intracranial disorders were rightfully demanded by
40\% of the participants (MRI and MRA of the endocranium).
The study of Minen et al. found 74.7\% of the physicians or-
dered MRI in patients with headaches and neurologic symp-
toms. Less than 50\% said they would refer a patient to a head
MRI for the new-onset headache, if it didn’t resolve with
medications, or was getting worse.\textsuperscript{15}

Conclusion

Participating physicians in our research showed a high
level of knowledge on headache diagnosis and therapy, but
little on the headaches due to cranial and cervical vascular
events.
1. WHO. Atlas of headache disorders and resources in the world 2011.
2. Serbian Headache Society. Međunarodna klasifikacija glavobolja, 3. izdanje (beta verzija) 2019.
3. Hickman FR. Ñ2 revisited. Int J Math Educ Sci Technol. 1983; 14(4):445–448. published online: 09. jul 2006. https://doi.org/10.1080/0020739830140409.
4. Kernick D, Stapley S, Hamilton W. GP’s classification of headache: Is primary headache underdiagnosed? Br J Gen Pract. 2008;58(547):102-104.
5. Becker WJ, Findlay T, Moga C, Scott NA, Harstall C, Tienzer P. Guideline for primary care management of headache in adults. Can Fam Physician. 2015;61(8):670–9.
6. Gültekin M, Balci E, İsmailoğullari S, Yetkin F, Baydenir R, Erdoğan F, et al. Awareness of migraine among primary care physicians in Turkey: A regional study. Noropsikiyatri Ars. 2018;55(4):354–7.
7. Robbins MS, Lipton RB. The epidemiology of primary headache disorders. Seminars in Neurology. 2010;30(2):107–119.
8. Alzahrani F, Hnoud M, Khayat H, Farahat F, Manlangit J, Algahtani HA, Artar A. Knowledge of Primary Healthcare Physicians about Headache Disorders: A Cross-Sectional Study. Qual Prim Care. 2016;24(2):83–86.
9. Steiner TJ, Antonaci F, Jensen R, Lainez MJA, Lanteri-Minet M, Valade D. Recommendations for headache service organisation and delivery in Europe. J Headache Pain. 2011;12(4):419–426.
10. Ahmed F. Headache disorders: differentiating and managing the common subtypes. Br J Pain. 2012;6(3):124–32.
11. Gnerre P, Para O, De Antonis F, Cavalieri D, Piombo M. The management of the patient with headache: From evidence to clinical practice. Italian Journal of Medicine. 2015;9(1):7–48.
12. Nacionalni vodič dobre kliničke prakse za dijagnostikovanje i lečenje ischemičkog moždanog udara, Ministarstvo zdravlja Republike Srbije, 2012. Available from: www.zdravlje.gov.rs
13. Kristoffersen ES, Lundqvist C. Medication-overuse headache: Epidemiology, diagnosis and treatment. Therapeutic Advances in Drug Safety. 2014;5(2):87–99.
14. Skorupan N. Farmakoterapija ataka najčešćih primarnih glavobolja. Arh Farm. 2016;66(19):42–57.
15. Minen MT, Loder E, Tishler L, Silbersweig D. Migraine diagnosis and treatment: A knowledge and needs assessment among primary care providers. Cephalalgia. 2015;6(4):358–370.

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