

A decorative L-shaped frame composed of two parallel grey lines. The top line starts from the left edge and extends to the right. The right line starts from the top edge and extends downwards. The two lines meet at a right angle in the top-right corner, forming a large open frame.

Farmaceutska zdravstvena zaštita
Pharmaceutical Care

SADRŽAJ - CONTENTS

FZZ-P1

**PROCJENA ZADOVOLJSTVA KORISNIKA ZDRAVSTVENOM USLUGOM
PRUŽENOM NA NIVOU APOTEKA OTVORENOG TIPRA**

**ASSESSMENT OF PATIENT'S SATISFACTION WITH HEALTH CARE SERVICES
IN COMMUNITY PHARMACIES**

- **Miomir Šoškić, Aleksandra Radović, Branislava Miljković** 467

FZZ-P2

**VISOK KRVNI PRITISAK KOD PUŠAČA - MOŽE LI FARMACEUT POMOĆI DA SE
PRONAĐE IZLAZ IZ ZAČARANOG KRUGA?**

**HIGH BLOOD PRESSURE IN SMOKERS - CAN A PHARMACIST HELP FIND A
WAY OUT OF A VICIOUS CIRCLE?**

- **Jasna Anđelković, Sandra Vezmar Kovačević,
Branislava Miljković, Miloš Radosavljević,
Jelena Stanojević-Veličković** 469

FZZ-P3

**VELIKA DOZA PROMENE: OD EDUKACIJE DO SAVETOVALIŠTA ZA GERB
BIG DOSE OF CHANGE: FROM EDUCATION TO COUNSELING FOR GERD**

- **Vesna Đorđević, Branislava Miljković** 471

FZZ-P4

**INTERAKCIJE LEKOVA PRI SAMOMEDIKACIJI ANALGETICIMA
DRUG INTERACTIONS IN SELF-MEDICATION WITH ANALGESICS**

- **Miomir Šoškić, Aleksandar Savić, Nemanja Bogdanović,
Jovana Jovanović, Dušica Janković, Anja Ojdanić,
Branislava Miljković** 473

FZZ-P5

**AMBULANTNA UPOTREBA ANTIHELMINTIKA U REPUBLICI SRPSKOJ
AMBULATORY USE OF ANTIHELMINTICS IN THE REPUBLIC OF SRPSKA**

- **Ana Golić Jelić, Ljubica Bojanić, Ljiljana Tasić,
Nataša Stojaković, Mirjana Đermanović,
Svjetlana Stoisavljević Šatara, Dajana Rodić** 475

FZZ-P6

**ANALIZA UPOTREBE ANALGETIKA PRI SAMOMEDIKACIJI
THE ANALYSIS OF USE OF ANALGESICS IN SELF-MEDICATION**

- Jovana Jovanović, Dušica Janković, Anja Ojdanić,
Miomir Šoškić, Aleksandar Savić, Nemanja Bogdanović,
Branislava Miljković

477

FZZ-P7

**FARMAKOEPIDEMIOLOŠKA ANALIZA POTROŠNJE ANTIHIPERGLIKEMIKA U
REPUBLICI SRPSKOJ**

**PHARMACOEPIDEMIOLOGICAL ANALYSIS OF ANTIHIPERGLICEMICS
CONSUMPTION IN THE REPUBLIC OF SRPSKA**

- Ljubica Bojanić, Miodrag Marjanović,
Mirjana Đermanović, Kristina Zrnić, Ana Golić Jelić

479

FZZ-P8

**UTICAJ ZNANJA I STAVOVA PACIJENATA O RACIONALNOJ UPOTREBI
ANTIBIOTIKA NA POJAVU BAKTERIJSKE REZISTENCIJE**

**THE INFLUENCE OF PATIENTS' KNOWLEDGE AND ATTITUDE ABOUT
RATIONAL USE OF ANTIBIOTICS ON BACTERIAL RESISTANCE**

- Tatjana Denić, Branka Legetić, Snežana Stević,
Slobodan Gigov, Milan Ilić, Gordana Stojković,
Zorana Cvetković-Stojković

481

FZZ-P9

**ZNAČAJ RACIONALNOG PROPISIVANJA I IZDAVANJA ANTIBIOTIKA ZA
PREVENCIJU POJAVE BAKTERIJSKE REZISTENCIJE**

**THE IMPORTANCE OF RATIONAL ANTIBIOTIC PRESCRIBING AND
DISPENSING IN THE PREVENTION OF BACTERIAL RESISTANCE**

- Tatjana Denić, Branka Legetić, Snežana Stević,
Slobodan Gigov, Milan Ilić, Gordana Stojković,
Zorana Cvetković-Stojković

483

FZZ-P10

PROPISIVANJE ANTIBIOTIKA U PRIMARNOJ ZDRAVSTVENOJ ZAŠTITI NA TERITORIJI NOVOG SADA: RAZLIKE IZMEĐU RECEPTA KOJE POKRIVA I NE POKRIVA ZDRAVSTVENO OSIGURANJE

PRESCRIBING OF ANTIBIOTICS IN PRIMARY HEALTH CARE IN NOVI SAD: DIFFERENCES BETWEEN PRESCRIPTIONS COVERED AND NOT COVERED BY HEALTH INSURANCE

- **Nemanja Todorović, Mladena Lalić-Popović,
Boris Milijašević, Svetlana Goločorbin-Kon,
Nebojša Pavlović, Jelena Čanji, Katarina Jeremić** 485

FZZ-P11

PROBLEMI SA UPOTREBOM LEKOVA KOD ODRASLIH PUŠAČA SA HIPERTENZIJOM-DA LI I KOJE INTERVENCIJE FARMACEUTI MOGU DA PRUŽE?

DRUG-RELATED PROBLEMS (DRPS) IN CURRENT ADULT SMOKERS WITH HYPERTENSION THAT AFFECT BLOOD PRESSURE (BP) CONTROL- IF AND WHICH INTERVENTIONS PHARMACISTS CAN PROVIDE?

- **Jasna Anđelković, Milan Rakić, Jovana Stojković,
Sandra Vezmar-Kovačević, Branislava Miljković** 487

FZZ-P12

**ULOGA FARMACEUTA U EDUKACIJI DECE O BEZBEDNOJ UPOTREBI LEKOVA
ROLE OF PHARMACISTS IN EDUCATION OF CHILDREN ABOUT SAFE USE OF MEDICINES**

- **Sonja Stojiljković, Dragana Rajković, Jelena Milošević** 489

FZZ-P13

**FARMACEUTSKA ZDRAVSTVENA ZAŠTITA U TERAPIJI PACIJENATA SA PROŠIRENIM VENAMA DONJIH EKSTREMITETA - RAZVOJ NOVE USLUGE
PHARMACEUTICAL CARE IN TREATMENT OF VARICOSE VEINS OF LOWER EXTREMITIES – DEVELOPMENT OF A NEW PHARMACY SERVICE**

- **Jasna Anđelković, Ivana Tadić** 491

FZZ-P14

**MERENJE KRVNOG PRITISKA U APOTECI – STAV KORISNIKA USLUGA
SERVICES FOR BLOOD PRESSURE MEASURING IN PUBLIC PHARMACY -
CUSTOMERS ATTITUDE**

- Jelena Stefanović-Vojinović, Đurđa Simić 493

FZZ-P15

**PROCENA POTENCIJALNO NEODGOVARAJUĆEG PROPISIVANJA LEKOVA
PRIMENOM PIM CHECK-A
ASSESSMENT OF POTENTIALLY INAPPROPRIATE PRESCRIBING OF DRUGS
BY USING PIM CHECK**

- Milica Ćulafić, Ana Murganić, Hristina Trajković,
Milena Kovačević, Branislava Miljković,
Željko Vlajsavljević, Sandra Vezmar Kovačević 495

FZZ-P16

**STAVOVI PACIJENATA O FARMACEUTIMA U APOTEKAMA PRIMARNE
ZDRAVSVE NE ZAŠTITE I NJIHOVOJ ULOZI U LEČENJU BOLESTI KOJE SE
MOGU ZBRINUTI U APOTECI**

**PATIENTS' ATTITUDE TOWARDS COMMUNITY PHARMACISTS AND THEIR
ROLE IN CURING COMMON CONDITIONS**

- Tijana Ćirović, Branislava Miljković, Mira Gavrilović,
Đurđa Simić, Sandra Vezmar Kovačević 497

FZZ-P17

**INTERAKCIJE LEKOVA U POPULACIJI ODRASLIH I STARIJIH PACIJENATA U
PRIMARNOJ ZDRAVSTVENOJ ZAŠTITI**

**DRUG INTERACTIONS IN A POPULATION OF ADULT AND OLDER PATIENTS
IN PRIMARY CARE**

- Milena Kovačević, Janja Mladenović, Milica Ćulafić,
Maša Roganović, Marija Jovanović,
Sandra Vezmar Kovačević, Branislava Miljković 499

FZZ-P18

**ULOGA FARMACEUTA U TRETMANU ATOPIJSKOG DERMATITISA-STAV
PACIJENATA**

**THE PHARMACISTS' ROLE IN THE TREATMENT OF ATOPIC DERMATITIS-
PATIENTS' OPINION**

- **Tatjana Mihajlović**

501

FZZ-P19

**SAMOMEDIKACIJA I FAKTORI RIZIKA KOD TRUDNICA NA TERITORIJI
GRADA NIŠA**

**SELF-MEDICATION AND RISK FACTORS AMONG PREGNANT WOMEN IN THE
CITY OF NIŠ**

- **Maja Cvetković, Dušan Ilić, Dušica Stojanović,
Marija Tasić-Kostov**

503

FZZ-P20

**STAVOVI I ZNANJE UČENIKA SREDNJIH MEDICINSKIH ŠKOLA O URGENTNOJ
KONTRACPCIJI**

**ATTITUDES AND KNOWLEDGE OF SECONDARY MEDICAL SCHOOL PUPILS
ABOUT EMERGENCY CONTRACEPTION**

- **Biljana Vasić, Tomislav Alavanja**

505

FZZ-P21

**POLIMEDIKACIJA OSOBA STARIJE ŽIVOTNE DOBI U KANTONU SARAJEVO
POLYMEDICATION IN ELDERLY PATIENTS IN THE SARAJEVO CANTON**

- **Vanja Piljak, Sukejna Redžepi, Nermina Žiga**

507

FZZ-P22

KOMPLIJANSA U TERAPIJI ARTERIJSKE HIPERTENZIJE

COMPLIANCE IN THE THERAPY OF ARTERIAL HYPERTENSION

- **Tijana Grebić, Slobodan Gigov, Nataša Jovanović Lješćković,
Svetlana Stojkov, Manda Dizdar, Jelena Gigov**

509

PROCJENA ZADOVOLJSTVA KORISNIKA ZDRAVSTVENOM USLUGOM PRUŽENOM NA NIVOU APOTEKA OTVORENOG TIPA

Miomir Šoškić¹, Aleksandra Radović¹, Branislava Miljković²

¹Klinički centar Crne Gore, Podgorica (Crna Gora), ²Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu - Farmaceutski fakultet (Srbija)

Primjena koncepta farmaceutske zdravstvene zaštite, značajno utiče na ishode liječenja pacijenata. Cilj ovog istraživanja bio je ispitati zadovoljstvo korisnika pruženom zdravstvenom uslugom, na nivou apoteka otvorenog tipa u Crnoj Gori. Deskriptivno istraživanje, dizajnirano kao studija presjeka, sprovedeno je u toku aprila mjeseca 2018. godine. U istraživanju su učestvovali korisnici usluga apoteka otvorenog tipa sa mjestom prebivališta u Crnoj Gori. Kao instrument u istraživanju korišćen je strukturirani web upitnik (15 pitanja).

Istraživanjem je obuhvaćeno 200 ispitanika (75,5% ženskog pola), prosječne starosti 35 godina (17-72 godine). Najveći broj ispitanika bio je sa završenom visokom (60%), a potom sa završenom srednjom školom (29%). Materijalni položaj najvećeg broja ispitanika ocijenjen je kao dobar 57,5%. Najveći broj ispitanika (62,5%) je u poslednjih 12 mjeseci posjetilo apoteku najmanje 6 puta i više, 24,5% ispitanika, 3 do 5 puta, a 11% ispitanika, do 2 puta godišnje. Svega 2% ispitanika nije imalo ni jednu posjetu apoteci u poslednjih godinu dana. 91,5% ispitanika, smatra da je vrijeme čekanja u apoteci optimalno. Organizacija rada apoteke je ocijenjena sa odličnom i vrlo dobrom ocjenom (89% ispitanika). Snabdjevenost apoteka je ocijenjena sa odličnom i vrlo dobrom ocjenom (77% ispitanika). 83% ispitanika je sa visokim ocjenama, ocijenilo kompetentnost zaposlenih u apoteci. 86% ispitanika je sa visokim ocjenama, izrazilo zadovoljstvo za dobijeno savjetovanje. Ljubaznost zaposlenih je sa najvišom ocjenom, ocijenjena od strane 70,5% ispitanika. Dobijena informacija u vidu pisane poruke je u 71% slučajeva, napisana čitko i jasno. Verbalni način komunikacije, 91% ispitanika, ocjenjuje sa veoma zadovoljno i zadovoljno.

Rezultati sprovedene studije ukazuju da korisnici često koriste zdravstvene usluge u apotekama i da su veoma zadovoljni nivoom pružene farmaceutske usluge. Kontinuirano unapređenje znanja i stručnih kompetencija, prilikom pružanja koncepta farmaceutske zdravstvene zaštite i kliničke farmacije, neophodan je preduslov za unapređenje zdravstvene usluge.

ASSESSMENT OF PATIENT'S SATISFACTION WITH HEALTH CARE SERVICES IN COMMUNITY PHARMACIES

Miomir Šoškić¹, Aleksandra Radović¹, Branislava Miljković²

¹Clinical Center of Montenegro, Podgorica (Montenegro), ²Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade-Faculty of Pharmacy (Serbia)

The application of the concept of pharmaceutical healthcare significantly influences the outcome of the patient's treatment. The aim of this research was to examine the satisfaction of the users with the health service at the level of community pharmacies in Montenegro. Descriptive research, designed as a cross-section study, was carried out in April of 2018. The research involved users of community pharmacies with a place of residence in Montenegro. A structured web questionnaire (15 questions) was used as an instrument in the research.

The study included 200 respondents (75.5% female), an average age of 35 years (17 to 72 years). The highest number of respondents finished high (60%), followed by secondary school (29%). The material position of the largest number of respondents was rated as good 57.5%. In the last 12 months, the majority of respondents (62.5%) visited the pharmacy at least 6 times and more, 24.5% 3 to 5 times, and 11% to 2 times a year. Only 2% of respondents did not have a single pharmacy visit in the past year. 91.5% of respondents think that the waiting time at the pharmacy is optimal. The organization of the work of the pharmacy was rated with an excellent and good rating (89% of the respondents). Pharmacy supply was rated with excellent and good rating (77% of respondents). 83% of the respondents rated the competence of employees at the pharmacy with high marks. 86% of the respondents expressed high satisfaction with the consultations received. The kindness of the employees was rated with the highest rating by 70.5% of the respondents. The received information in the form of a written message is in 71% of cases was written clearly and readable. In 91% of cases, the respondents evaluated the verbal manner of communication as a very satisfactory and satisfactory.

The results of the conducted study indicate that users often use health services in pharmacies and are very satisfied with the level of service provided. Continuous improvement of knowledge and professional competencies in providing the concept of pharmaceutical healthcare and clinical pharmacy is a prerequisite for improving health services.

VISOK KRVNI PRITISAK KOD PUŠAČA - MOŽE LI FARMACEUT POMOĆI DA SE PRONAĐE IZLAZ IZ ZAČARANOG KRUGA?

Jasna Anđelković¹, Sandra Vezmar Kovačević², Branislava Miljković², Miloš Radosavljević³, Jelena Stanojević-Veličković⁴

¹Apoteka Kragujevac, ²Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu - Farmaceutski fakultet, ³Institut za javno zdravlje Kragujevac, ⁴Dom Zdravlja Kragujevac (Srbija)

Hipertenzija je jedan od najvažnijih uzroka prevremenog morbiditeta i mortaliteta koji može da se prevenira. Cilj ove studije bio je da se proceni adekvatnost kontrole hipertenzije kod odraslih pušača i da se ispitaju intervencije farmaceuta radi poboljšanja kontrole hipertenzije kod ovih pacijenata.

Odrasli pacijenti sa hipertenzijom i navikom pušenja uključeni su u studiju sprovedenu u apotekama u Kragujevcu, Srbija, od februara 2017. do marta 2018. godine. Podaci su prikupljeni korišćenjem brzog skrining testa za procenu kontrole hipertenzije.

Studija je obuhvatila 944 pacijenata (61% muškaraca, stopa odgovora 57%), srednje starosti 49 ± 5 godina. Tokom poslednje četiri nedelje, visok krvni pritisak (KP) povremeno je ometao dnevni rad u 31% bolesnika, 19% bolesnika je imalo visok KP, jednom ili dva puta nedeljno, a 9% pacijenata je imalo nizak KP jednom nedeljno ili češće. 7% pacijenata je u poslednje četiri nedelje zatražilo konsultacije sa farmaceutima u vezi sa eliminacijom simptoma visokog KP. 39% pacijenata je navelo da KP nije dobro kontrolisan, dok je 64% pacijenata reklo da promene životnog stila nisu efikasne. Za većinu pacijenata, barijere za bolju kontrolu KP-a bile su nemogućnost prepoznavanja simptoma (19%) i činjenica da hipertenzivni lekovi nisu im dostupni (11%). Farmaceuti su predložili 472 individualnih algoritama za bolju kontrolu KP-a i 611 intervencija od kojih je 69% savetovanje pacijenta, a 31% intervencija zahtevale su učešće lekara.

Farmaceuti u javnim apotekama mogu igrati važnu ulogu u upravljanju hipertenzijom kod trenutnih pušača. Farmaceuti mogu da pruže intervencije koje mogu poboljšati kontrolu hipertenzije kod ovih pacijenata

HIGH BLOOD PRESSURE IN SMOKERS - CAN A PHARMACIST HELP FIND A WAY OUT OF A VICIOUS CIRCLE?

**Jasna Anđelković¹, Sandra Vezmar Kovačević², Branislava Miljković²,
Miloš Radosavljević³, Jelena Stanojević-Veličković⁴**

¹Apoteka Kragujevac, ²Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade-Faculty of Pharmacy, ³Institute of Public Health Kragujevac, ⁴Health Center Kragujevac (Serbia)

Hypertension is one of the most important preventable causes of premature morbidity and mortality. The aim of this study was to measure the adequacy of hypertension control in current adult smokers, and to examine pharmacists' interventions to improve hypertension management in these patients.

Adult patients with hypertension and smoking habit were included in a study conducted in Pharmacies in Kragujevac, Serbia, from February 2017 to March 2018. The data were collected using a quick screening test to detect hypertension control.

The study included 944 patients (61% male, response rate 57%), mean age 49 ±5 years. Over the past four weeks, high blood pressure (BP) occasionally interfered with daily work life in 31% of patients, 19% of the patients had high BP, once or twice a week, and 9% of patients had low BP once a week or less often. 7% of patients needed consultations with pharmacists, in the past four weeks, regarding the elimination of high BP symptoms. 39% of patients stated that BP was not well controlled, while 64% of patients said that life style changes were not effective. For most patients, barriers to better BP control were the inability to recognize the symptoms (19%) and the fact that hypertensive drugs are not accessible to them (11%). Pharmacists offered 472 individual algorithms for better control of BP and suggested 611 interventions of which 69% were patient counseling and 31% required doctor's intervention.

Community pharmacists can play an important role in hypertension management in current smokers. Pharmacists can provide interventions that could improve hypertension control in these patients.

VELIKA DOZA PROMENE: OD EDUKACIJE DO SAVETOVALIŠTA ZA GERB

Vesna Đorđević¹, Branislava Miljković²

¹ZU Apoteka Astra lek, Niš, ²Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu - Farmaceutski fakultet (Srbija)

Apoteka želi da se pozicionira na deregulisanom tržištu kao mesto gde je pacijentima ponuđena dodatna vrednost koju farmaceuti ostvaruju kroz uslugu savetovanja. U cilju razvoja usluge savetovanja prepoznata je potreba za edukacijom farmaceuta za specifična zdravstvena stanja koja se mogu zbrinjavati na nivou apoteke. Cilj rada bio je da se evaluiira uticaj edukacije na unapređenje znanja farmaceuta za prepoznavanje pacijenata sa gastroezofagealnom refluksnom bolešću (GERB) radi pružanja savetovanja o farmakološkim i nefarmakološkim merama.

Apoteka *Astra lek* je sprovedla kontinuiranu edukaciju (predavanja i radionice). Farmaceuti su odgovarali na postavljena pitanja pre i posle edukacije i radionice na temu GERB-a. Materijal za edukaciju je sadržao savremene, pouzdane informacije o simptomima GERB-a, način njihovog prepoznavanja; aktuelne smernice za terapiju GERB-a, nefarmakološku podršku pacijentima sa GERB-om. U okviru organizovane radionice obrađeni su slučajevi iz prakse pacijenata sa GERB-om. Upotrebljena je deskriptivna statistička analiza.

Broj pitanja na testu bio je 25. Prosečan broj tačnih odgovora pre edukacije je 11,1 a posle edukacije 19,2. Povećanje procenta poznavanja terapijskih ishoda je za 44,4%. Najveći porast tačnih odgovora bio je vezan za pitanja diferenciranja pacijenata prema stepenu GERB-a, terapijskih opcija prema stepenu GERB-a, indikacija za dugotrajnu upotrebu inhibitora protonske pumpe (IPP), kada je neadekvatna/adekvatna primena IPP lekova u gastroprevenciji, klinički značajne interakcije i pitanja koja treba postavljati pacijentima koji ponovo uzimaju IPP. Svi farmaceuti su odgovorili da od stepena poznavanja terapijskih opcija zavisi proaktivan pristup prilikom savetovanja pacijenata koji traže pomoć za GERB.

Sprovedena kontinuirana edukacija farmaceuta je značajno unapredila znanje farmaceuta u zbrinjavanju pacijenata sa GERB-om što je preduslov za razvoj usluge savetovanja pacijenta i pružanje koncepta farmaceutske zdravstvene zaštite.

BIG DOSE OF CHANGE: FROM EDUCATION TO COUNSELING FOR GERD

Vesna Đorđević¹, Branislava Miljković²

¹Pharmacy Astra lek, Niš, ²Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade-Faculty of Pharmacy (Serbia)

The pharmacy wants to be positioned on the deregulated market as a place where patients can get an added value that pharmacists are providing through counseling. In order to develop a counseling service, there is a need to educate pharmacists for a specific health condition that can be treated at the pharmacy level. The aim of the study was to evaluate impact of education on improving knowledge of pharmacists for recognizing patients with gastroesophageal reflux disease (GERD) in order to provide advice on pharmacological and non-pharmacological measures.

Pharmacy *Astra lek* conducted continuing education (lectures and workshops) for the employed pharmacists. Pharmacists answered the questions before and after training and workshop on the topic of GERD. The educational material was based on contemporary, reliable information on the symptoms of GERD, the way they are recognized, current guidelines for GERD, non-pharmacological support. Within the organized workshop, cases from the practice from patients with GERD were analyzed. Descriptive statistical analysis was used.

The number of questions on test was 25. The average number of correct answers before education is 11.1 and after 19.2. An increase in the percentage of knowledge is 44%. The highest increases in accurate responses were related to the issues of patient differentiation according to GERD, therapeutic options, indication for long-term use of proton pump inhibitors (PPI), when is adequate/inadequate use of PPI, clinically significant interactions and questions for patients on continuous PPI therapy. All pharmacists responded that a proactive approach to counseling patients seeking GERD assistance depends on knowledge.

Conducted continuous education for pharmacists has significantly improved the knowledge of pharmacists in the care of patients with GERD, which is a prerequisite for the development of patient counseling services and pharmaceutical care.

INTERAKCIJE LEKOVA PRI SAMOMEDIKACIJI ANALGETICIMA

**Miomir Šoškić¹, Aleksandar Savić², Nemanja Bogdanović³,
Jovana Jovanović⁴, Dušica Janković⁵, Anja Ojdanić⁶, Branislava Miljković⁷**

¹Klinički centar Crne Gore, Podgorica (Crna Gora), ²Vojnomedicinska akademija, Beograd, ³Apoteka Lora, Beograd, ⁴Apoteka BENU, Beograd, ⁵PHOENIX Pharma, Beograd, ⁶Apoteka BENU, Beograd, ⁷Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu – Farmaceutski fakultet (Srbija)

Prema sprovedenim studijama analgetici se ubrajaju u često korišćene lekove za samomedikaciju. Stoga je njihova racionalna primena bitna sa aspekta prevencije potencijalnih interakcija sa drugim, istovremeno primenjenim lekovima. Cilj ovog istraživanja bio je ispitati broj, učestalost i tip klinički značajnih interakcija.

Deskriptivnim epidemiološkim istraživanjem obuhvaćeno je ukupno 215 ispitanika, sa mestom prebivališta u Beogradu. Kao instrument u istraživanju korišćen je standardizovani upitnik (14 pitanja). Za analizu nastanka potencijalnih interakcija korišćena je baza podataka, *Drug Interaction Checker*. Istraživanje je sprovedeno u periodu, februar – mart, tokom 2018. godine.

Od ukupnog broja, 58,6% ispitanika bilo je ženskog pola. Prosečna starost u analiziranom uzorku iznosila je 43,3 godine (od 18 do 84 godina). Najveći broj ispitanika je sa završenim visokim obrazovanjem, 54,4%. Od ukupnog broja anketiranih, 94,4% ispitanika se izjasnilo da pribegava nekom vidu samomedikacije. Potencijalne interakcije su identifikovane kod 20,5% ispitanika, dok je ukupan broj otkrivenih interakcija u analiziranom uzorku bio 195, čija učestalost aproksimativno odgovara 4,4 interakcije po ispitaniku. U ispitivanoj populaciji kao najučestalije interakcije izdvojile su se one u kojima su prisutni nesteroidni antiinflamatorni lekovi, od kojih se izdvajaju ibuprofen i diklofenak sa nekim od istovremeno primenjivanih antihipertenziva. Pomenute interakcije su se javile sa učestalošću od 45,6% od ukupnog broja identifikovanih interakcija u analiziranom uzorku. Osim navedenog, 12,5% ispitanika je identifikovalo neželjene reakcije prilikom upotrebe određenih analgetika u terapiji.

Sprovedena studija ukazuje da je učestalost pojave interakcija u ispitivanoj populaciji velika. Stoga je potrebno edukovati pacijente koji analgetike koriste u samomedikaciji i pratiti njihove potencijalne interakcije sa drugim istovremeno primenjenim lekovima u cilju prevencije i/ili minimiziranja neželjenih ishoda interakcija.

DRUG INTERACTIONS IN SELF-MEDICATION WITH ANALGESICS

**Miomir Šoškić¹, Aleksandar Savić², Nemanja Bogdanović³,
Jovana Jovanović⁴, Dušica Janković⁵, Anja Ojdanić⁶, Branislava Miljković⁷**

¹Clinical Center of Montenegro, Podgorica (Montenegro) ²Military Medical Academy, Belgrade, ³Lora Pharmacy, Belgrade, ⁴BENU Pharmacy, Belgrade, ⁵PHOENIX Pharma, Belgrade, ⁶BENU Pharmacy, Belgrade, ⁷Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade - Faculty of Pharmacy (Serbia)

According to the conducted studies, analgesics are considered as often used drugs for self-medication. Therefore is their rational usage important from the aspect of prevention of potential interactions with other drugs applied at the same time. The aim of this research was to examine the number, frequency and type of clinically important interactions.

Descriptive epidemiological research, covered a total of 215 respondents, with the place of residence in Belgrade. As an instrument in the study was used a standardized questionnaire (14 questions). Drug Interaction Checker was used for the analysis of potential interactions as a database. The research was conducted in the period February – March, during 2018.

Of the total number, 58.6% of respondents were female. The average age in the analyzed sample was 43.3 years (18 to 84 years). The highest number of respondents is with completed higher education, 54.4%. Of the total number, 94.4% of respondents declared they resort to some form of self-medication. Potential interactions were identified in 20.5% of respondents, while the total number of interactions detected in the analyzed sample was 195, the frequency approximating 4.4 interactions per respondent. In the examined population, the most common interactions were those in which non-steroidal anti-inflammatory drugs were present, of which ibuprofen and diclofenac were distinguished with some of the antihypertensive agents administered simultaneously. These interactions have occurred with a frequency of 45.6% of the total number of identified interactions in the analyzed sample. Besides that, 12.5% of respondents identified adverse reactions when using certain analgesics in therapy.

The conducted study shows that the frequency of interaction in the examined population is high. It is necessary to educate patients who use analgesics in self-medication and monitor potential interactions with other concomitant medications in order to prevent and/or minimize unwanted outcome of the interaction.

AMBULANTNA UPOTREBA ANTIHELMINTIKA U REPUBLICI SRPSKOJ

**Ana Golić Jelić¹, Ljubica Bojanić², Ljiljana Tasić³, Nataša Stojaković¹,
Mirjana Đermanović², Svjetlana Stojsavljević Šatara¹, Dajana Rodić⁴**

¹Katedra za farmakologiju i toksikologiju Univerzitet u Banjoj Luci - Medicinski fakultet, ²JZU Institut za javno zdravstvo Republike Srpske, Banja Luka (Bosna i Hercegovina), ³Katedra za socijalnu farmaciju i farmaceutske zakonodavstvo Univerzitet u Beogradu - Farmaceutski fakultet (Srbija), ⁴Univerzitet u Banjoj Luci (Bosna i Hercegovina)

Gotovo polovina svjetske populacije se nalazi u riziku od infekcija izazvanih nekim od helminata, što postaje glavno pitanje javnog zdravlja u mnogim tropskim i subtropskim zajednicama sa niskim prihodom. Svjetska zdravstvena organizacija (SZO) je objavila vodiče koji se bave pitanjem ovih infekcija i njihove prevencije. Cilj rada je analizirati ukupnu ambulantnu upotrebu antihelmintika u Republici Srpskoj u periodu od 2014. do 2016. godine, te je uporediti sa podacima iz Republike Hrvatske i Norveške.

Podaci o ambulantnoj upotrebi gotovih lijekova na teritoriji Republike Srpske tokom 2014, 2015 i 2016. godine dobijeni su uvidom u izvještaje Instituta za javno zdravstvo Republike Srpske, te upoređivani sa podacima o upotrebi lijekova u Republici Hrvatskoj i Norveškoj. Podaci za Hrvatsku i Norvešku su preuzeti iz Agencije za lijekove i medicinske proizvode Republike Hrvatske i Instituta za javno zdravlje Norveške. Podaci su izraženi u definisanim dnevnim dozama (DDD) na 1000 stanovnika dnevno u skladu sa smjernicama SZO.

U Republici Srpskoj postoji porast ambulantne upotrebe antihelmintika, koja je 2014. godine iznosila 0,07 DDD/1000st./dan, 2015.godine 0,09, a 2016. godine 0,12, što odgovara porastu ukupne ambulantne upotrebe lijekova u Republici Srpskoj u posmatranom trogodišnjem periodu. U Republici Hrvatskoj takođe postoji porast ukupne ambulantne upotrebe lijekova, ali se upotreba antihelmintika smanjila od 2014. do 2016. godine. Poredeći ovetri zemlje najveća upotreba antihelmintika zabilježena je u Norveškoj (0,15DDD/1000st./dan), bez značajnih varijacija u toku posmatranih godina; infekcije su uglavnom otkrivane rutinskim pregledima imigranata, te je kretanje stanovništva kao i visok stepen razvoja sistema zdravstvene zaštite vjerovatno uzrok najveće upotrebe antihelmintika.

U Republici Srpskoj je zabilježen porast ambulantne upotrebe antihelmintika u posmatranom periodu. Međutim, bez obzira na trend rasta, upotreba ovih lijekova u Republici Srpskoj je još uvijek niska u poređenju sa zemljama poput Norveške, ali treba uzeti u obzir da Republika Srpska nije izložena dolasku imigranata kao Norveška.

AMBULATORY USE OF ANTIHELMINTICS IN THE REPUBLIC OF SRPSKA

Ana Golić Jelić¹, Ljubica Bojanić², Ljiljana Tasić³, Nataša Stojaković¹, Mirjana Đermanović², Svjetlana Stojsavljević Šatara¹, Dajana Rodić⁴

¹Department for Pharmacology and Toxicology, University of Banja Luka - Faculty of Medicine, ²Public Health Institute of the Republic of Srpska, Banja Luka (Bosnia and Herzegovina), ³Department of Social Pharmacy and Pharmaceutical Legislation, University of Belgrade - Faculty of Pharmacy (Serbia), ⁴University of Banja Luka (Bosnia and Herzegovina)

Almost half of the world's population is at risk of some of the infections caused by helminths, which is becoming the major public health issue in many tropical and subtropical low income communities. The World Health Organization (WHO) has published guidelines addressing the issue of these infections and their prevention. The aim of this paper is to analyze the overall ambulatory use of anthelmintics in Republic of Srpska during the period from 2014 to 2016 and compare it to data from the Republic of Croatia and Norway.

The data on outpatient medicine use in the Republic of Srpska during 2014 to 2016 were obtained from the reports on medicine use of the Public Health Institute of Republic of Srpska and compared to data in Croatia and Norway which were taken from the Agency for Medicinal Products and Medical Devices of Croatia and the Norwegian Institute of Public Health. The data are expressed in defined daily doses (DDD) per 1000 inhabitants per day in accordance with WHO guidelines.

There is an increase in outpatient use of anthelmintics in Republic of Srpska, with 0.07 DDD/1000inh./day in 2014, 0.09 in 2015 and 0.12 in 2016, which is accompanied by an increase in total outpatient drug use in Republic of Srpska during the observed three-year period. There is also an increase in total outpatient drug use in Croatia, but the use of anthelmintics has decreased from 2014 to 2016. This analyze had recorded the largest use of anthelmintics in Norway (0.15 DDD/1000 inh./day) with no significant variations during the observed years; infections are mostly detected by routine surveys of immigrants, thus population movements and high level of health care system are likely to be the cause.

Republic of Srpska recorded an increase in outpatient use of anthelmintics during the observed period. However regardless of the growth trend, the use of these drugs in the Republic of Srpska is still low compared to Norway, thus Republic of Srpska is not exposed to immigrants as Norway.

ANALIZA UPOTREBE ANALGETIKA PRI SAMOMEDIKACIJI

Iovana Iovanović¹, Dušica Janković², Anja Ojdanić¹, Miomir Šoškić³, Aleksandar Savić⁴, Nemanja Bogdanović⁵, Branislava Miljković⁶

¹Apoteka BENU, Beograd, ²PHOENIX Pharma, Beograd, ³Klinički centar Crne Gore, Podgorica (Crna Gora), ⁴Vojnomedicinska akademija, Beograd, ⁵Apoteka Lora, Beograd, ⁶Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu - Farmaceutski fakultet (Srbija)

Analgetici predstavljaju grupu lekova koji se sve češće upotrebljavaju u samomedikaciji. Cilj istraživanja bio je sagledati upotrebu najčešće korišćenih analgetika, utvrditi vrstu indikacije za koju se najčešće upotrebljavaju i razloge za odabir analgetika.

Istraživanje, dizajnirano kao studija preseka, bilo je prospektivno i sprovedeno u periodu februar-mart 2018. Korišćen je anketni upitnik, koji se sastojao od 14 pitanja. Analiza podataka sprovedena je upotrebom statističkog programa PASW, version 18.0 (SPSS Inc Chicago, Illionis). Za ispitivanje korelacije upotrebe analgetika i pojedinačnih varijabli korišćena je korelaciona analiza. Za procenu statističkog značaja rezultata uzeta je vrednost $p < 0,05$.

U istraživanju je učestvovalo 215 ispitanika, prosečne starosti 43,3 godine (18-84 godine), 58,6% bilo je ženskog pola. Analgetike u samomedikaciji koristi 94,4% ispitanika. Najčešća indikacija za upotrebu analgetika je glavobolja (40,1%), dok se kao najviše upotrebljavani analgetik izdvaja ibuprofen (32,6%). Učestalost primene analgetika je u pozitivnoj korelaciji sa bolovima koji su prisutni u leđima, mišićima, kolenima i zglobovima. Upotreba nimesulida i veći broj različitih indikacija je u korelaciji sa ženskim polom, dok se kao prediktor za odabir analgetika na osnovu reklame izdvaja muški pol. Statistički značajna korelacija postoji između upotrebe većeg broja lekova sa povećanjem godina života i nastanka klinički značajnih interakcija u korišćenoj terapiji. Utvrđeno je da se upotreba ibuprofena, paracetamola i kombinovanog praška smanjuje sa povećanjem godina života, dok se upotreba diklofenaka i rizik od nastanka interakcija povećava. Neželjenu reakciju na lek je prepoznalo 12,5% ispitanika, od toga, 40,7% ispitanika nije prijavilo neželjenu reakciju na lek.

Rezultati istraživanja ukazuju da veliki broj pacijenata koristi analgetike u samomedikaciji neracionalno. Neophodno je uložiti dodatne edukativne napore, prema korisnicima i prema zdravstvenim radnicima u cilju racionalne primene analgetika.

THE ANALYSIS OF USE OF ANALGESICS IN SELF-MEDICATION

Iovana Jovanović¹, Dušica Janković², Anja Ojdanić¹, Miomir Šoškić³, Aleksandar Savić⁴, Nemanja Bogdanović⁵, Branislava Miljković⁶

¹BENU Pharmacy, Belgrade, ²PHOENIX Pharma, Belgrade, ³Clinical Center of Montenegro, Podgorica (Montenegro), ⁴Military Medical Academy, Belgrade, ⁵Lora Pharmacy, Belgrade, ⁶Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade - Faculty of Pharmacy (Serbia)

Analgesics represent a group of medications which are more often used in self-medication. The aim of this research was to have an insight of usage of most often utilized analgesics and to determine the type of indication for which they are most often used and the reasons for choosing an analgesic.

The research, designed as cross-sectional study, was prospective and conducted in the period February-March 2018. A survey was conducted by using a questionnaire consisted of 14 questions. Data analysis was conducted by using a statistical program PASW, version 18.0 (SPSS Inc Chicago, Illinois). Correlation analysis was used for assaying correlation of analgesics application and individual variables. A value of $p < 0.05$ was taken for assessment of statistical importance of results.

215 respondents participated in the study and the average age was 43.3 years (range 18-84 years), of which 58.6% were females. Analgesics were used by 94.4% of the respondents. The most often indication for use of analgesics was headache (40.1%), while ibuprofen stood out as the most often applied analgesic (32.6%). Frequency of analgesic application was positively correlated to pain that is present in the back, muscles, knees and joints. Use of nimesulide and a larger number of indications is correlated to female sex, while the predictor for choosing an analgesic based on commercials is male sex. Statistically important correlation exists between the application of larger number of medication with increasing age and occurrence of clinically important interactions in the used therapy. It is determined that use of ibuprofen, paracetamol and combined powder decreases with age, while the use of diclofenac and risk of interactions' occurrence increases. Adverse drug reaction was recognized by 12.5% of the respondents, of whom 40.7% did not report the adverse drug reaction.

The results of research point out that large number of patients use analgesics in self-medication irrationally. It is necessary to invest additional educational efforts, toward users and health care workers for the goal of rational analgesic application.

FARMAKOEPIDEMIOLOŠKA ANALIZA POTROŠNJE ANTIHIPERGLIKEMIKA U REPUBLICI SRPSKOJ

**Ljubica Bojanić^{1,2}, Miodrag Marjanović¹, Mirjana Đermanović^{1,2},
Kristina Zrnić¹, Ana Golić Jelić²**

¹Institut za javno zdravstvo Republike Srpske, ²Univerzitet u Banjoj Luci -
Medicinski fakultet (Bosna i Hercegovina)

Dijabetes melitus predstavlja jedan od najvećih javnozdravstvenih problema današnjice širom svijeta. Prevalenca dijabetesa je u konstantnom porastu posljednje 3 decenije, a smatra se da tome najviše doprinosi pretilost koja je u porastu, kao i nedostatak fizičke aktivnosti. Prema podacima SZO, u 2012. godini dijabetes je bio direktno uzrok oko 1,5 milion smrtnih slučajeva. Takođe, dijabetes može da dovede do brojnih zdravstvenih komplikacija i poveća rizik prijevremene smrti. *Cilj rada* je predstaviti zdravstveno stanje stanovništva u odnosu na dijabetes melitus, te potrošnju antihyperglukemika u Republici Srpskoj u periodu od 2011. do 2016.godine.

Podaci o zdravstvenom stanju stanovništva i potrošnji lijekova su dobijeni iz godišnjih izvještaja Instituta za javno zdravstvo Republike Srpske. Potrošnja lijekova je izražena u DDD (definisane dnevne doze/1000stanovnika/dan) prema metodologiji SZO.

U posmatranom periodu je evidentan značajan porast oboljelih od dijabetes melitusa, pri čemu je broj prijavljenih oboljelih porastao sa 31056 u 2011. godini na 56016 u 2016. godini (za čak 80%). Od toga, smatra se da na dijabetes tipa 2 otpada 85 do 90% oboljelih. Najveći broj oboljelih je registrovan u šestoj i sedmoj deceniji života, pri čemu do naglog porasta oboljelih dolazi već u petoj deceniji. U skladu sa tim, ukupna potrošnja antihyperglukemika ima kontinuiran trend porasta od 2011. godine (34,3 DDD) do 2016. godine (52,6 DDD), što čini porast za 53% u posmatranom periodu. Od toga potrošnja insulina i analoga (A10A) u prosjeku iznosi 5,6 DDD, dok potrošnja oralnih antihyperglukemika (A10B) iznosi 31,6 DDD (84,5% od ukupne potrošnje).

S obzirom na značajan porast oboljelih od dijabetesa, od čega najviše dijabetesa tipa 2 koji se može prevenirati, te porasta potrošnje antihyperglukemika i zdravstvenih troškova, postoji jasna indikacija za pojačanim provođenjem sistemskih preventivnih mjera i podizanjem svijesti o dijabetesu, sa ciljem smanjenja prevalencije dijabetes melitusa u Republici Srpskoj.

PHARMACOEPIDEMIOLOGICAL ANALYSIS OF ANTIHIPERGLICEMICS CONSUMPTION IN THE REPUBLIC OF SRPSKA

**Ljubica Bojanić^{1,2}, Miodrag Marjanović¹, Mirjana Đermanović^{1,2},
Kristina Zrnić¹, Ana Golić Jelić²**

¹Public Health Institute of the Republic of Srpska, ²University of Banja Luka – Faculty of Medicine (Bosnia and Hercegovina)

Diabetes mellitus is one of the biggest public health problems of today. The prevalence of diabetes has increasing in the last three decades, mostly because of increase in the prevalence of obesity, as well as the lack of physical activity. According to the WHO, in 2012, diabetes was directly responsible for 1.5 million deaths. Also, diabetes can lead to many health complications and increase the risk of premature death. *The aim* of the papers to present the health status of the population in relation to diabetes mellitus, as well as the consumption of antihyperglycemics in the Republic of Srpska during the period from 2011 to 2016.

Data on the health status and medicine consumption are obtained from the annual reports of Public Health Institute of the Republic of Srpska. Medicine consumption data is expressed in DDD (defined daily doses/1000 inhabitants/day) according to the WHO methodology.

A significant increase in diabetes mellitus patients was recorded, with the number of reported patients increasing from 31056 in 2011 to 56016 in 2016 (80%). Of this, it is considered that 85 to 90% have diabetes type 2. The majority of registered patients were in the sixth and seventh decades of life. Accordingly, the total consumption of antihyperglycemics has a continuous increase from 2011 (34.3 DDDs) to 2016 (52.6 DDDs), which is an increase of 53% during the observed period. Of this, the consumption of insulin and analogues (A10A) was 5.6 DDDs on average, while the consumption of oral antihyperglycemics (A10B) was 31.6 DDDs (84.5% of total consumption).

Given the significant increase in diabetes patients, of which most can be prevented, and the increase in antihyperglycemic consumption and healthcare spending, there is a clear indication for increased enforcement of systematic prevention and raising awareness on diabetes in order to reduce the prevalence of diabetes mellitus in Republic of Srpska.

UTICAJ ZNANJA I STAVOVA PACIJENATA O RACIONALNOJ UPOTREBI ANTIBIOTIKA NA POJAVU BAKTERIJSKE REZISTENCIJE

**Tatjana Denić¹, Branka Legetić², Snežana Stević², Slobodan Gigov²,
Milan Ilić², Gordana Stojković¹, Zorana Cvetković-Stojković¹**

¹Apoteka Mega pharmacy Niš, ²Univerzitet Privredna akademija u Novom Sadu
- Farmaceutski fakultet Novi Sad (Srbija)

Antimikrobni lekovi su svojom pojavom izazvali dramatične promene ne menjajući samo tretman zaraznih bolesti već i sudbinu čovečanstva. Rezistencija bakterija na antibiotike je prirodan biološki fenomen u njihovoj borbi za opstanak. Pojava populacije patogenih bakterija otpornih na antibiotike koja je nastala usled prekomerne ili pogrešne upotrebe postala je glavni globalni zdravstveni problem. Cilj ove studije je bio da se ispita nivo znanja o osnovnoj nameni antibiotika, posledicama neracionalne upotrebe i učestalost primene antibiotika.

Opservacionim istraživanjem obuhvaćeno je ukupno 477 ispitanika koji su dobrovoljno pristupili popunjavanju anonimne ankete. U cilju prikupljanja podataka korišćen je originalni upitnik koji je distribuiran u dve apoteke u Nišu i jednu apoteku u Aleksincu.

Od ukupno 477 ispitanika koliko je bilo obuhvaćeno ispitivanjem, 367 ispitanika je bilo iz Niša prosečne starosti 40,25 godina, a 110 ispitanika iz Aleksinca prosečne starosti 40,36 godina. Rezultati su pokazali da ispitanici nemaju adekvatno znanje o osnovnoj nameni antibiotika. U Nišu je 54,02% ispitanika smatralo da su antibiotici efikasni za lečenje prehlade i gripa, dok je u Aleksincu procenat ispitanika sa takvim stavom 68,31%. Određeni broj ispitanika smatra da su antibiotici efikasni za lečenje virusnih infekcija (13,35% u Nišu i 22,73% u Aleksincu), alergija (1,82% u Aleksincu) i bola različitog porekla (2,18% u Nišu i 9,09% u Aleksincu). Najveći procenat ispitanika u Nišu je izjavio da uzima antibiotike jednom u par godina (45,23%) dok najveći procenat ispitanika u Aleksincu uzima antibiotike 1-2 puta godišnje (48,18%). Pojam bakterijske rezistencije je poznat malom procentu ispitanika (30,52% u Nišu i 18,18% u Aleksincu). Ispitanici u oba grada vide zdravstvene radnike i zdravstvene ustanove kao najpouzdaniji izvor informacija.

Ispitivanjem znanja i stavova ispitanika iz Niša i Aleksinca ustanovljen je visok stepen zloupotrebe antibiotika. Ovakve studije imaju za cilj da osnaže edukativne kampanje za promovisanje racionalne upotrebe antibiotika kako u zajednicama, tako i u zdravstvenim ustanovama.

THE INFLUENCE OF PATIENTS` KNOWLEDGE AND ATTITUDE ABOUT RATIONAL USE OF ANTIBIOTICS ON BACTERIAL RESISTANCE

**Tatjana Denić¹, Branka Legetić², Snežana Stević², Slobodan Gigov²,
Milan Ilić², Gordana Stojković¹, Zorana Cvetković-Stojković¹**

¹Pharmacy Mega pharmacy Niš, ²University Bussines Academy in Novi Sad - Faculty of Pharmacy Novi Sad (Serbia)

Antimicrobial drugs caused huge changes, not only in treatment of various infections, but for the future of mankind generally. Bacterial resistance on antibiotics is natural biological mechanism in their struggle for existence. Appearance of different pathogen bacteria resistant to antibiotics, which is result of excessive use or misuse of antibiotics, is leading global health issue. The aim of this study was to analyse the level of knowledge about main purpose of antibiotics, consequences of antibiotics misuse and incidence of antibiotics use

Observational study was conducted on 477 voluntary participants who completed anonymous survey. For this purpose original questionnaire was distributed in two community pharmacies in Niš, and one in Aleksinac.

Out of 477 participants 367 were from Niš with average age of 40.25 years, and 110 were from Aleksinac with average age of 40.36 years. Results have shown that participants` awareness about main purpose of antibiotics is very low. 54.02% participants from Niš considered that antibiotics are efficient against cold or flu, while in Aleksinac this percent is even higher (68.31%). Certain number of participants considered that antibiotics are efficient against viral infections (13.35% from Niš and 22.73% from Aleksinac), against allergies (1.82% from Aleksinac) and pain (2.18% from Niš, and 9.09% from Aleksinac). Most participants from Niš take antibiotics once in few years (45.23%), while most participants from Aleksinac take antibiotics 1-2 times a year (48.18%). Low percent of participants know about bacterial resistance (30.52% from Niš and 18.18% from Aleksinac). Participants from both Niš and Aleksinac consider healthcare professionals and institutions as most relevant source of information about antibiotics.

In this survey on participants` awareness we concluded that there is high level of antibiotics misuse. Such studies have an aim to encourage educational campaigns for rational use of antibiotics in healthcare institutions and society in general.

ZNAČAJ RACIONALNOG PROPISIVANJA I IZDAVANJA ANTIBIOTIKA ZA PREVENCIJU POJAVE BAKTERIJSKE REZISTENCIJE

**Tatjana Denić¹, Branka Legetić², Snežana Stević², Slobodan Gigov²,
Milan Ilić², Gordana Stojković¹, Zorana Cvetković-Stojković¹**

¹Apoteka Mega pharmacy Niš, ²Univerzitet Privredna akademija u Novom Sadu
- Farmaceutski fakultet Novi Sad (Srbija)

Poslednjih decenija upotreba antibiotika je postala sve raširenija, zbog čega su bakterije vremenom postale rezistentne na veliki broj antibiotika. Problem antibiotske rezistencije ozbiljna je pretnja globalnom javnom zdravlju, koja je najčešće posledica prekomerne i neopravdane upotrebe antibiotika. Cilj ove studije je bio da se ispita da li postoji zloupotreba antibiotika od strane lekara, farmaceuta i pacijenata kao i stepen komplijanse kod primene antibiotika.

Opservacionim istraživanjem obuhvaćeno je ukupno 477 ispitanika koji su dobrovoljno pristupili popunjavanju anonimne ankete. U cilju prikupljanja podataka korišćen je originalni upitnik koji je distribuiran u dve apoteke u Nišu i jednoj apoteci u Aleksincu.

Ispitivanjem je utvrđeno da je prisutan visok nivo samomedikacije među ispitanicima gde antibiotike bez preporuke lekara koristi 50,41% ispitanika u Nišu i 51,82% ispitanika u Aleksincu. 51,77% ispitanika u Nišu i 54,55% ispitanika u Aleksincu je potvrdilo da poseduje antibiotike u kućnoj apoteci u rezervi, dok 50,55% ispitanika iz Niša i 52,29% ispitanika iz Aleksinca je koristilo antibiotike koji su preostali od prethodnog lečenja. Uput od lekara za analizu krvi, urina ili brisa pre propisivanja antibiotika dobija 14,09% ispitanika u Nišu i 22,94% u Aleksincu. Najčešće propisivan antibiotik bio je cefaleksin (21,45% u Nišu i 27,08% u Aleksincu), zatim amoksicilin i azitromicin. Veliki procenat ispitanika je izjavio da terapiju uzima do kraja i u tačno određenom vremenskom intervalu. 97% ispitanika iz Niša i 88% ispitanika iz Aleksinca je izjavilo da zna šta su probiotici iako svega 55,02% ispitanika iz Niša i 39,74% ispitanika iz Aleksinca pravilno koristi probiotike uz antibiotik.

Naše istraživanje pokazuje da bi racionalizacija upotrebe antibiotika između ostalog trebala da podrazumeva razvoj obrazovnih programa za javnost i zdravstvene radnike, razvoj nacionalnih i lokalnih vodiča za lekare, strogu zabranu prodaje antibiotika bez lekarskog recepta, kao i razvoj nacionalnih strategija koje imaju za cilj promociju racionalnog korišćenja antibiotika kroz komunikaciju i edukaciju.

THE IMPORTANCE OF RATIONAL ANTIBIOTIC PRESCRIBING AND DISPENSING IN THE PREVENTION OF BACTERIAL RESISTANCE

**Tatjana Denić¹, Branka Legetić², Snežana Stević², Slobodan Gigov²,
Milan Ilić², Gordana Stojković¹, Zorana Cvetković-Stojković¹**

¹Pharmacy Mega pharmacy Niš, ²University Business Academy in Novi Sad - Faculty of Pharmacy (Serbia)

Over the years, the use of antibiotics has become widespread causing the resistance of the increasing number of bacteria which is a serious threat to global public health. One of the most important causes of bacterial resistance is the excessive and unjustified use of antibiotic in human medicine. The aim of this study was to investigate whether the use of antibiotics is abused by doctors, pharmacists and/or patients, as well as the level of compliance in the use of antibiotics.

Observational study was conducted on 477 voluntary participants who completed anonymous questionnaire. For this purpose original questionnaire was distributed in two community pharmacies in Niš and one in Aleksinac.

The results showed high level of self-medication – 50.41% of respondents in Niš and 51.82% of respondents in Aleksinac use antibiotics without doctor's recommendation. 51.77% respondents in Niš and 54.55% respondents in Aleksinac stated that they have remaining antibiotics in their home, while 50.55% respondents in Niš and 52.29% of them in Aleksinac used antibiotics left from their previous therapy. Very few respondents stated that they always get referral from a doctor for blood, urine and swab analyses (14.09% in Niš and 22.94% in Aleksinac). The most commonly prescribed antibiotic were cephalexin (21.45% in Niš and 27.08% in Aleksinac) followed by amoxicillin and azithromycin. Most of the respondents confirmed taking therapy in line with recommended regimen and duration. 97% of respondents in Niš and 88% of respondents in Aleksinac confirmed that they know what probiotics were, although a small percentage confirmed use of probiotics with antibiotics. Only 55.02% of respondents from Niš and 39.74% from Aleksinac used probiotics properly with antibiotics.

Our study showed that rationalization of the use of antibiotics should include development of educational programs for the public and health professionals, the development of national and local guidelines for doctors and pharmacists, the prohibition on the sale of antibiotics without medical prescription and the development of national strategies aiming promotion of the rational use of antibiotics through communication and education.

PROPISIVANJE ANTIBIOTIKA U PRIMARNOJ ZDRAVSTVENOJ ZAŠTITI NA TERITORIJI NOVOG SADA: RAZLIKE IZMEĐU RECEPATA KOJE POKRIVA I NE POKRIVA ZDRAVSTVENO OSIGURANJE

**Nemanja Todorović¹, Mladena Lalić-Popović¹,
Boris Milijašević², Svetlana Goločorbin-Kon¹,
Nebojša Pavlović¹, Jelena Čanji¹, Katarina Jeremić¹**

¹Katedra za farmaciju, Univerzitet u Novom Sadu - Medicinski fakultet, ²Katedra za farmakologiju, toksikologiju i kliničku farmakologiju, Univerzitet u Novom Sadu - Medicinski fakultet (Srbija)

Praćenje propisivanja antibiotika je važno za smanjenje bakterijske rezistencije. Ovo istraživanje imalo je za cilj utvrđivanje razlika između propisivanja antibiotika preko recepata na teret fonda Republike Srbije (RFZO recepti) i onih recepata koji nisu na teretu fonda (ne-RFZO recepti).

Studija je retrospektivna, zasnovana na podacima dobijenim iz Z.U. Apoteka „Cvejić“ za januar 2018. Posmatrano je osam apoteka na teritoriji Novog Sada. Uzeti su podaci o propisivanju svih grupa antibiotika, uključujući i antibiotike za lokalnu primenu. Podaci su podeljeni u dve osnovne grupe: RFZO recepti i ne-RFZO recepti koje su dalje podeljene na sledeće varijable: pol, godine, ATC grupa, farmaceutski oblik i sedište proizvođača. Rezultati su izraženi kao broj izdatih antibiotika u okviru jedne kategorije varijable (n) i kao procenat od ukupnog broja propisanih antibiotika.

Tokom posmatranog perioda, od ukupnog broja izdatih i prodatih lekova (35.705) 8,47% su bili antibiotici (7,89% od svih RFZO recepata, 8,88% od prodaje lekova). Propisivanje antibiotika veće je putem ne-RFZO recepata (60,77%). Nijedan antibiotik iz ATC grupe A nije propisan o trošku fonda, iako se pojedini preparati ove grupe nalaze na listi A RFZO. Takođe, i antibiotici iz ATC grupa D, G, P i S su se manje propisivali putem RFZO recepata, u odnosu na ne-RFZO. ATC grupa J je najzastupljenija (94,10% RFZO antibiotskih recepata i 67,39% ne-RFZO). Najviše su se propisivali čvrsti farmaceutski oblici antibiotika (82,70%). Polučvrsti i tečni preparati antibiotika za lokalnu primenu su se više propisivali putem ne-RFZO recepata. Od svih propisanih antibiotika, 63,18% su bili antibiotici domaćih proizvođača.

Istraživanje je pokazalo veći procenat propisivanja antibiotika putem ne-RFZO recepata, posebno lokalnih polučvrstih i tečnih farmaceutskih oblika antibiotika. Rezultati sugerišu na neophodnost veće kontrole ove vrste propisivanja, kako sa stanovišta zdravstvenog osiguranja, tako i u opravdanosti upotrebe pojedinih grupa antibiotika.

PRESCRIBING OF ANTIBIOTICS IN PRIMARY HEALTH CARE IN NOVI SAD: DIFFERENCES BETWEEN PRESCRIPTIONS COVERED AND NOT COVERED BY HEALTH INSURANCE

**Nemanja Todorović¹, Mladena Lalić-Popović¹,
Boris Milijašević², Svetlana Goločorbin-Kon¹,
Nebojša Pavlović¹, Jelena Čanji¹, Katarina Jeremić¹**

¹Department of Pharmacy, University of Novi Sad - Faculty of Medicine,

²Department of Pharmacology, Toxicology and Clinical pharmacology,
University of Novi Sad - Faculty of Medicine (Serbia)

The aim of this paper was to determine the differences between prescribing of antibiotics through prescriptions which are covered by the Fund of the Republic of Serbia (fund prescriptions-FP) and those prescription which are not covered by the Fund (non-fund prescriptions-NFP).

The study is retrospective, based on data obtained from Pharmacy "Cvejić" for January 2018. Eight pharmacies on the territory of Novi Sad were observed. Data on the prescription of all antibiotics was collected, including antibiotics for topical use. The data was divided into two basic groups: FP and NFP which are further divided into the following variables: gender, age, ATC group, pharmaceutical form and manufacturer. The results were expressed as the number of antibiotic drugs within one category of variables (n) and as a percentage of the total number of prescribed antibiotics.

During the observed period, of the total number of issued and sold drugs (35705), 8.47% were antibiotics (7.89% of all FP, 8.88% of sale drugs). Antibiotics were more often prescribed through NFP (60.77%). No antibiotic from ATC Group A was prescribed at the expense of the Fund. As for ATC groups D, G, P and S more antibiotics were prescribed through FP than NFP. ATC group J was the most commonly prescribed (94.10% of FP and 67.39% of NFP). Solid pharmaceutical forms of antibiotics were prescribed the most (82.70%). Semi-solid and liquid antibiotic preparations for topical use were more prescribed by NFP.

The study showed a higher percentage of antibiotic prescribed through NFP, especially semi-solid and liquid pharmaceutical forms for topical use. The results suggest the need for greater control of this type of prescription, both from the point of view of health insurance, and justification of the use of certain groups of antibiotics.

PROBLEMI SA UPOTREBOM LEKOVA KOD ODRASLIH PUŠAČA SA HIPERTENZIJOM-DA LI I KOJE INTERVENCIJE FARMACEUTI MOGU DA PRUŽE?

**Jasna Andelković¹, Milan Rakić², Jovana Stojković²,
Sandra Vezmar-Kovačević³, Branislava Miljković³**

¹Apoteka Kragujevac, ²Apoteka Prokuplje, ³Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu - Farmaceutski fakultet (Srbija)

Hipertenzija je jedan od vodećih uzroka kardiovaskularnih bolesti. Cilj studije je bio da identifikuje vrste problema u upotrebi lekova kod odraslih pušača sa hipertenzijom koji utiču na kontrolu krvnog pritiska (KP) i da se ispituju vrste intervencija farmaceuta koje bi poboljšale ishode lečenja kod ovih pacijenata.

Odrasli pacijenti sa hipertenzijom i pušačkom navikom uključeni su u studiju sprovedenu u apotekama u Kragujevcu i Prokuplju, Srbija od januara 2017. do maja 2018. godine. Podaci su prikupljeni upotrebom upitnika za otkrivanje kontrole hipertenzije. PCNE klasifikacioni sistem V 8.02 je korišćen za identifikaciju problema sa upotrebom lekova.

Studija je uključila 293 pacijenta (67% muškaraca, stopa odgovora 56%), srednja starost 51 ± 3 godine. Prosečan broj hroničnih bolesti bio je 2 ± 1 , godine aktivnog pušenja 18 ± 3 , cigareta / dan 14 ± 3 , i vrednosti KP $143 \pm 5/95 \pm 4$ mm / Hg. 88% pacijenata ne zna svoj profil lipida, dok 76% pacijenata ne zna svoj profil kardiovaskularnog rizika. U 156 bolesnika otkriveno je ukupno 374 problema sa upotrebom lekova (3 ± 1 problema / pacijentu). Problemi sa upotrebom lekova su: pogrešna upotreba lekova 36%, nejasna uputstva za doziranje 23%, izbor lekova 20%, neželjene reakcije lekova 11%, potrebna preventivna terapija 10%. Farmaceut je pružio savetovanje kod 67% pacijenata, 17% pacijenata je dobilo pisana uputstva upotrebe lekova dok je 16% pacijenata upućeno lekaru. Za većinu pacijenata, doktori (31%) i internet (30%) su glavni izvori informacija o lečenju hipertenzije.

Identifikovan je značajan broj različitih problema u vezi sa primenom lekova. Farmaceuti imaju važnu ulogu u indentifikaciji problema sa upotrebom lekova kod odraslih pušača sa hipertenzijom. Farmaceuti mogu pružiti intervencije koje mogu poboljšati ishode kod ovih pacijenata.

DRUG-RELATED PROBLEMS (DRPS) IN CURRENT ADULT SMOKERS WITH HYPERTENSION THAT AFFECT BLOOD PRESSURE (BP) CONTROL- IF AND WHICH INTERVENTIONS PHARMACISTS CAN PROVIDE?

Jasna Anđelković¹, Milan Rakić², Jovana Stojković², Sandra Vezmar-Kovačević³, Branislava Miljković³

¹Pharmacy Kragujevac, ²Pharmacy Prokuplje, ³Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade - Faculty of Pharmacy (Serbia)

Hypertension is among the leading causes of cardiovascular disease. The aim of the study was to identify the types of drug-related problems (DRPs) in current adult smokers with hypertension that affect blood pressure (BP) control, and to examine pharmacists' interventions to improve outcomes in these patients.

Adult patients with hypertension and smoking habit were included in the study conducted in Pharmacies in Kragujevac and Prokuplje, Serbia from January 2017 to May 2018. The data were collected using a questionnaire to detect hypertension management. PCNE Classification V 8.02 system was used to identify DRPs.

The study included 293 patients (67% male, response rate 56%), mean age 51±3. The average number of chronic diseases was 2±1, years of smoking habit 18±3, cigarettes/day 14±3, and BP values 143±5/95±4mm/Hg. 88% of patients did not know their lipid profile, while 76% of patients did not know their cardiovascular risk profile. A total of 374 DRPs were detected in 156 patients (3±1 DRP/patient). DRPs were: inadequate use of drugs 36%, unclear dosing instructions 23%, drug choice 20%, adverse reaction of drugs 11%, preventive therapy required 10%. 67% of patients were offered to counsel, 17% written summary of medications and 16% of patients were referred to the doctor. For most patients, doctors (31%) and internet (30%) are main sources of information about hypertension management.

A significant number of different DRPs have been identified. Pharmacists have an important role in identifying DRPs in adult hypertensive smokers. Pharmacists can provide interventions that can improve the outcomes in these patients.

ULOGA FARMACEUTA U EDUKACIJI DECE O BEZBEDNOJ UPOTREBI LEKOVA

Sonja Stojiljković¹, Dragana Rajković², Jelena Milošević³

¹ZU apoteka Farmakom, ²Farmaceutska Komora Srbije,

³Apotekarska ustanova Kragujevac (Serbia)

Lekovi su sastavni deo života celokupne populacije. Svaka porodica ima svoju kućnu apoteku, pa maker ona bila sastavljena samo od par lekova poput analgetika, antihistaminika ili kremova/masti za topikalnu primenu. Deca često dolaze u kontakt sa farmaceutskim preparatima. A koliko o njima zaista znaju? Cilj sprovođenja edukacije dece u uzrastu 5 – 10 godina je učenje osnovnih pojmova o bezbednom rukovanju i čuvanju lekova, podizanju svesti roditelja o mogućoj toksičnosti preparata sa jedne strane, ali i isticanje uloge farmaceuta kao odgovornog zdravstvenog radnika sa kojim mogu razgovarati o zdravlju.

Kratka prezentacija od strane farmaceuta u vidu interaktivnog javnog časa o lekovima i ulozu farmaceuta. Prezentacije su održane grupama dece u 3 vrtića i 2 škole. Obuhvaćeno je 80 dece uzrasta 5 – 6 godina i 60 dece uzrasta 7 – 10 godina. Trajanje prezentacije 30 minuta.

Interaktivnom komunikacijom utvrđeno je da su deca veoma zainteresovana i već upućena u problematiku čuvanja i korišćenja lekova, ali malo znaju o farmaceutu kao zdravstvenom radniku i na koja sve to pitanja mogu dobiti odgovor od farmaceuta. Deci su podeljeni edukativni lifleti sa temom “Farmaceut – vaš savetnik i saveznik”, da zajedno sa roditeljima porazgovaraju o edukaciji kojoj su prisustvovali.

Deca sve češće dolaze u kontakt sa velikim brojem lekova i dijetetskih suplemenata koje koriste oni sami, njihovi roditelji ili bliski rođaci. Edukacije su neophodne kontinuirano kako bi se smanjio rizik od zloupotrebe iz neznanja. Farmaceut kao najdostupniji zdravstveni radnik detetu treba da bude predstavljen kao prijatelj koji može pomoći prilikom unapređenja i održavanja zdravlja. Ovakav vid edukacija može se sprovoditi od strane farmaceuta na teritoriji cele Srbije.

ROLE OF PHARMACISTS IN EDUCATION OF CHILDREN ABOUT SAFE USE OF MEDICINES

Sonja Stojilković¹, Dragana Rajković², Jelena Milošević³

¹Farmakom pharmacy, ²Pharmaceutical Chamber of Serbia,

³Pharmacy Kragujevac (Serbia)

Drugs are an integral part of the life of the entire population. Children often come into contact with pharmaceutical preparations. And how much do they really know about them? The goal of implementing the education of children aged 5-10 years is learning the basic concepts of safe handling and storage of medicines, as well as raising parents' awareness of possible toxicity of the preparations. Also the goal is highlighting the role of pharmacists as a responsible healthworker with whom they can talk about health.

Brief presentation by pharmacists in the form of interactive conversation with children about medicines and the role of pharmacists. Presentations were held by groups of children in 3 kindergartens and 2 schools. There were 80 children aged 5 - 6 years and 60 children aged 7 - 10 years. Duration of the presentation was 30 minutes.

Interactive communication has found that children are very interested in and already are concerned with the problem of preserving and using drugs, but they don't know much about the pharmacist as a healthcare provider. Children have been given educational leaflets with the topic "Pharmacist - your advisor and ally", to talk to their parents about the education they attended.

Children often come in contact with a large number of medicines and dietary supplements used by themselves, their parents or close relatives. Education is necessary to reduce the risk of misuse. The pharmacist, as the most accessible healthcare worker, should be presented to the child as a friend who can help improve and maintain health. This kind of education can be carried out by pharmacists in Serbia.

FARMACEUTSKA ZDRAVSTVENA ZAŠTITA U TERAPIJI PACIJENATA SA PROŠIRENIM VENAMA DONJIH EKSTREMITETA - RAZVOJ NOVE USLUGE

Jasna Anđelković¹, Ivana Tadić²

¹Apoteka Kragujevac, ²Katedra za socijalnu farmaciju i farmaceutsko zakonodavstvo, Univerzitet u Beogradu – Farmaceutski fakultet (Srbija)

Razvoj farmaceutskih usluga koje imaju za cilj prevenciju i lečenje proširenih vena donjih ekstremiteta može biti od velikog značaja za zdravlje pacijenata. Ciljevi su bili ispitati ulogu farmaceuta u terapiji pacijenata kod kojih su prisutne proširene vene donjih ekstremiteta i da li usluga farmaceuta dovodi do poboljšanja ishoda kod pacijenata.

Istraživanje je sprovedeno u Savetovalištu Apoteke Kragujevac u periodu jul 2016 - maj 2018. godine. U savetovalištu je pacijentima pružena usluga merenja venske cirkulacije donjih ekstremiteta digitalnom fotopletizmografijom. Merenje je vršio farmaceut nakon čega je svim pacijentima pružen savet u skladu sasmernicama za farmaceute za terapiju proširenih vena. Farmaceuti su ishode intervencije pratili kod istih pacijenata nakon 3, 6 i 12 meseci, ponovnim merenjem venskog protoka na istom aparatu. Zadovoljstvo pacijenata uslugom evaluirano je upitnikom u kom je opšte zadovoljstvo ocenjeno na skali od 1 do 5.

Istraživanje je uključilo 96 pacijenata (74% žena) ukupne prosečne starosti 48±3 godina. Nakon merenja, 9% pacijenata upućeno je lekaru. Tipični znaci proširenih vena bili su prisutni kod 69% pacijenata. Kod 81% pacijenata farmaceut je predložio farmakoterapiju (venotonik: diosmin + hisperidin), dok je kod 72 % pacijenata predložena kompresivna terapija. Poboljšanje je zabeleženo kod 61% pacijenata nakon tri i 48% pacijenata nakon šest meseci. Nakon dvanaest meseci 53 % pacijenata izjavilo je da su se simptomi proširenih vena povukli. Od svih uključenih pacijenata, 88% smatra da je merenje venske cirkulacije i konsultacija sa farmaceutom bila korisna, dok 70% pacijenata smatra da ova usluga treba da se sprovodi u apoteci. Prosečna ocena zadovoljstva pacijenata uslugom iznosila je 4,8.

Farmaceuti bi mogli da imaju značajnu ulogu u terapiji proširenih vena pacijenata implementiranjem usluge merenja venske cirkulacije digitalnom fotopletizmografijom i savetovanjem. Smernice za farmaceute u terapiji proširenih vena mogu doprineti poboljšanju ishoda kod pacijenata.

PHARMACEUTICAL CARE IN TREATMENT OF VARICOSE VEINS OF LOWER EXTREMITIES – DEVELOPMENT OF A NEW PHARMACY SERVICE

Jasna Anđelković¹, Ivana Tadić²

¹Pharmacy Kragujevac, ²Department of Social Pharmacy and Pharmaceutical Legislation, University of Belgrade - Faculty of Pharmacy (Serbia)

Pharmaceutical care services can contribute in prevention and better treatment of patients with varicose veins of lower extremities. The aims of the study were to examine the role of pharmacists in treatment of patients with varicose veins of lower extremities and whether new pharmacy service could lead to better health outcomes of patients

The study was conducted within the Pharmacy Kragujevac (Serbia) during the period July 2016 - May 2018 year. In a specific pharmacy, pharmacist measured the venous circulation of lower extremities using the digital photoplethysmography and provided the consultation to every patient according to Guidelines for pharmacists for varicose treatment. The outcomes were measured at the same device in every patient after 3, 6 and 12 months after baseline service. The satisfaction of the patients with the new pharmacy service was evaluated on a scale from 1 to 5.

The study included 96 patients (74% female) with the average age of 48 ± 3 years. Pharmacist referred 9% of patients to the physician. Typical signs of varicose were presented in 69% of patients. Pharmacist suggested pharmacotherapy (diosmin + hisperidin) and compression therapy in 81% and 72% of patients, prospectively. The varicose veins were improved in 61% and 48% of patients after 3 and 6 months, prospectively. After 12 months, 53% of patients reported that varicose symptoms had been receded. Most of the patients (88%) believed that measurement of the vein circulation and consultation with a pharmacist was helpful, while 70% of patients thought that this service could be useful within the pharmacy. The satisfaction of the patients with the new pharmacy service was 4,8.

Implementation of a new pharmacy service for varicose treatment could have a significant role in treatment of patients. The Guidelines for pharmacists for varicose treatment could improve patient outcomes.

MERENJE KRVNOG PRITISKA U APOTECI – STAV KORISNIKA USLUGA

Jelena Stefanović-Vojinović, Đurđa Simić

ZUA Lilly drogerie, Beograd (Srbija)

Očekivanja opšte i stručne javnosti u vezi razvoja različitih vrsta usluga koju pacijenti mogu da očekuju u apotekama su u porastu. Cilj istraživanja je da pokaže stav korisnika usluga o potrebi za postojanjem usluge merenja krvnog pritiska u apotekama.

Sprovedena je anketa osmišljena za potrebe istaživanja sa 11 pitanja od 01.06.-10.06.2018. godine u 54 apoteke ZUA Lilly drogerie na teritoriji Srbije. Farmaceuti su dodatne informacije od značaja zapisivali na osnovu odgovora iz ankete. Primenjena je deskriptivna statistička analiza.

Ukupno je anketirano 629 ispitanika (56.3 godina +/-14.4). Veći broj anketiranih je bio ženskog pola (403, 64%). Povišen krvni pritisak ima 379 (60%) ispitanika dok 49 (8%) ispitanika ne zna da li ima hipertenziju. Od ispitanika koji imaju hipertenziju, 366 (97%) ima propisanu terapiju, od kojih 328 (90%) smatra da je redovno koristi. Najčešći navedeni razlozi neredovne primene su: upotreba samo kada imaju visok pritisak, stav da im lekovi ne prijaju, stav da im lekovi ne koriste sniženju krvnog pritiska. Od ukupnog broja ispitanika 538 (85%) smatra da bi usluga merenja krvnog pritiska u apotekama bila korisna.

Rezultati ukazuju na visoka očekivanja korisnika usluga apoteka za uvođenje usluge merenja krvnog pritiska. Uvid u vrednosti krvnog pritiska omogućava farmaceutu skrining korisnika za hipertenziju i njihovo blagovremeno upućivanje lekaru, a za pacijente sa hipertenzijom optimalno praćenje efikasnosti terapije i savetovanje prilagođeno potrebama individualnog pacijenta.

SERVICES FOR BLOOD PRESSURE MEASURING IN PUBLIC PHARMACY - CUSTOMERS ATTITUDE

Jelena Stefanović-Vojinović, Đurđa Simić

ZUA Lilly drogerie, Belgrade (Serbia)

There are growing expectations in developing different type of services that pharmacist could provide to their patients in the community pharmacy. Aim of this research was to show attitude of the participants about having services for blood pressure measuring in community pharmacies.

Survey was created for this research with eleven questions and it was given to the participants during ten days (01.06-10.06.2018.) in 54 pharmacies in ZUA Lilly Drogerie across the Serbia. Additionally, pharmacists documented important information from the participants. Descriptive statistical analyses were performed.

Among 629 survey participants (56.3 years+/-14.4), majority were female 403 (64.07%). 379 (60%) of participants have a hypertension and only 49 (8%) of participants don't know if they have hypertension. From all the participants with hypertension, 366 (97%) have prescribed drug therapy, and 328 (90%) of them claim that they use therapy regularly. The most common reasons for not taking the therapy were: the use only when they have high blood pressure, not well tolerated medicines, the attitude that medicines are not effective. 538 (85%) participants consider useful the service of monitoring blood pressure in community pharmacy.

The results in this study show great expectations among the customers for implementing blood pressure monitoring in community pharmacy. By knowing the measured blood pressure, pharmacist could provide good screening for new-hypertension patients who need to be directed to visit their doctor. For the patient with hypertension, this might be useful for optimizing efficacy of their therapy and for individual counseling.

PROCENA POTENCIJALNO NEODGOVARAJUĆEG PROPISIVANJA LEKOVA PRIMENOM PIM CHECK-A

**Milica Ćulafić^{1,2}, Ana Murganić¹, Hristina Trajković¹, Milena Kovačević¹,
Branislava Miljković¹, Željko Vlajsavljević², Sandra Vezmar Kovačević¹**

¹Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu -
Farmaceutski fakultet, ²Transplantaciona hepatologija, Klinika za
gastroenterologiju i hepatologiju, Klinički centar Srbije, Beograd (Srbija)

Postoji više kriterijuma uz pomoć kojih se može ustanoviti neodgovarajuće propisivanje lekova. Jedan od najčešće korišćenih širom sveta jeste *BEER* kriterijum. Sledi *STOPP/ START* kriterijum, koji osim potencijalno nepravilno propisanih lekova, detektuje i propuste u propisivanju lekova u starijoj populaciji i interakcije među lekovima. Najnoviji kriterijum *PIM Check* omogućava i proveru terapije u populaciji odraslih, a dostupan je u elektronskoj formi. Procena stope pravilnog propisivanja lekova primenom *PIM Check* alata u populaciji pacijenata starijih od 65 godina na nivou primarne zdravstvene zaštite, te upoređivanje sa rezultatima dobijenim *STOPP/START* kriterijumom, je cilj ovog istraživanja.

Sprovedena je studija preseka u 5 gradskih javnih apoteka. Podaci o pacijentima i terapiji su obrađeni *PIM Check* alatom. Potencijalni problemi u propisivanju su kategorisani u četiri grupe: prekomerno/nedovoljno propisivanje, lek-lek interakcije i ostalo. Sve prikupljene informacije su statistički obrađene u *PASW 18.0* (SPSS Inc., Chicago, IL, USA).

U studiju je uključeno 509 pacijenata, prosečnih godina $74,8 \pm 6,5$, žena 57,4%. Identifikovano je 71,4% prekomerno propisanih lekova (364 pacijenta), 80,6% nedovoljno propisanih (411 pacijenata) i 13,1% interakcija (67 pacijenata). Gotovo polovina pacijenata (47,8%) je imala istovremeno i nedovoljno i prekomerno propisane lekove. Dokazana je korelacija prekomernog propisivanja sa *STOPP* kriterijumom ($p < 0,05$), kao i nedovoljnog propisivanja sa *START* kriterijumom ($p < 0,001$). Uočena je statistički značajna razlika u broju otkrivenih nepravilnosti u propisivanju između *PIM Check* i *STOPP/ START* kriterijuma ($p < 0,05$).

Potencijalno neodgovarajuće propisivanje je uočeno kod značajnog broja pacijenata. *PIM Check* kao osetljiv i jednostavan alat za prepoznavanje potencijalnih nepravilnosti u propisivanju, može unaprediti svakodnevnu praksu. Neophodna je aktivnija uloga kliničkog farmaceuta u analizi propisivačke politike, a jedan od načina za poboljšanje brige o pacijentu upravo može biti *PIM Check*.

ASSESSMENT OF POTENTIALLY INAPPROPRIATE PRESCRIBING OF DRUGS BY USING PIM CHECK

Milica Ćulafić^{1,2}, Ana Murganić¹, Hristina Trajković¹, Milena Kovačević¹, Branislava Miljković¹, Željko Vlajsavljević², Sandra Vezmar Kovačević¹

¹Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade - Faculty of Pharmacy, ²Hepatology and Liver Transplant Unit, Clinic for Gastroenterology and Hepatology, Clinical Center of Serbia, Belgrade (Serbia)

Several criteria are available to identify potentially inappropriate prescribing. One of the most commonly used worldwide is *Beers' criteria* and *STOPP/START criteria*. Besides potentially inappropriate prescribing, *STOPP/START* allows the detection of omission of medicines in the elderly population and drug interactions. Latest criteria available in electronic form, *PIM Check*, enables verification of therapy in the adult population. The study aimed to assess rates of inappropriate prescribing by *PIM Check* in population ages 65 and above, at primary care level; to compare this tool with the *STOPP/START criteria*.

Across-sectional study was conducted in 5 community pharmacies. Patient's records and therapy were processed through *PIM Check*. Potential problems in prescribing were categorised into four groups: excessive/insufficient prescribing, drug-drug interactions and other. Statistical analysis was performed using PASW 18.0 (SPSS Inc., Chicago, IL, USA).

Five hundred and nine patients were included in the study, mean age 74.8±6.5, 57.4% female. *PIM Check* identified 71.3% overprescribed (OP) medicines (364 patients), 80.6% under prescribed (UP) (411 patients) and 13.1% drug-drug interactions (67 patients). Almost half of the patient population (47.8%) had at the same time OP and UP medicines. We detected a correlation between OP and *STOPP* criteria ($p<0.05$) and between UP and *START* criteria ($p<0.001$). Statistically, a significant difference was noted between the total number of identified potential prescribing errors using *PIM Check* vs *STOPP/START* criteria ($p<0.05$).

Potentially inappropriate prescribing was detected in a significant number of patients. *PIM Check* is a sensitive and easy-to-use tool for identification of potentially inappropriate prescribing that may enhance everyday practice. The more proactive role of a clinical pharmacist is warranted regarding prescribing policy analysis. Timely use of *PIM Check* maybe a proper way to offer better patient care through the involvement of pharmacist.

STAVOVI PACIJENATA O FARMACEUTIMA U APOTEKAMA PRIMARNE ZDRAVSVE NE ZAŠTITE I NJIHOVOJ ULOZI U LEČENJU BOLESTI KOJE SE MOGU ZBRINUTI U APOTECI

**Tijana Ćirović¹, Branislava Miljković², Mira Gavrilović¹,
Đurđa Simić³, Sandra Vezmar Kovačević²**

¹ZUA "Dr Ristić", Medigroup, ²Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu - Farmaceutski fakultet, ³ZUA Lilly drogerie (Srbija)

U apoteke svakodnevno dolaze pacijenti kojima je potreban savet o terapiji bolesti/stanja koja se mogu zbrinuti samomedikacijom. Cilj istraživanja je bio utvrditi kakvi su stavovi pacijenata o farmaceutima i njihovoj ulozi u lečenju navedenih bolesti/stanja.

Istraživanje je obavljeno popunjavanjem upitnika od strane pacijenata u apotekama, uz pomoć farmaceuta, u nekoliko gradova u Srbiji. Prikupljeni su sledeći podaci: najvažniji kriterijum za odabir apoteke, da li farmaceut treba da iskaže mišljenje o terapiji, da li je farmaceut stručan da predloži odgovarajuću samomedikaciju, da li pacijent prvo traži savet od farmaceuta za navedene bolesti, da li bi bilo potrebe za izabranim farmaceutom i da li je potrebno ujednačiti cene lekova. Statistička obrada je izvršena deskriptivnom analizom i *Mann-Whitney U* testom, statistički značajnim je smatrano $p < 0,05$.

U istraživanju je učestvovalo 112 pacijenata. Najčešći kriterijum za izbor apoteke bila je stručnost i ljubaznost farmaceuta (41%), blizina stanovanja (30%) i pristupačne cene (18%). Pacijentima (87%) su stručnost i ljubaznost bili veoma važni u odabiru apoteke. 58% pacijenata se složilo da je farmaceut dužan da da svoje stručno mišljenje na propisanu terapiju lekara, dok je 80% pacijenata smatralo da je farmaceut dovoljno stručan da pruži savete o samomedikaciji. Većina pacijenata (59%), najčešće zaposlenih, savete za samomedikaciju prvo traži u apoteci ($p < 0,05$). Pacijenti sa hroničnim bolestima i sa > 2 leka u terapiji su smatrali da bi im od koristi bio izabrani farmaceut ($p < 0,05$). 84,8% pacijenata je smatralo da bi bilo dobro ujednačiti cene leka u apotekama. 57,2% pacijenata kaže da po savet ode kod farmaceuta u čiju stručnost ima poverenja, ali kupi lek gde ima veći popust.

Zaposleni pacijenti savete za samomedikaciju češće traže od farmaceuta. Pacijenti smatraju da su farmaceuti stručni da pruže savet o samomedikaciji dok im je najčešći i vrlo važan kriterijum za odabir apoteke stručnost i ljubaznost farmaceuta.

PATIENTS' ATTITUDE TOWARDS COMMUNITY PHARMACISTS AND THEIR ROLE IN CURING COMMON CONDITIONS

**Tijana Ćirović¹, Branislava Miljković², Mira Gavrilović¹,
Đurđa Simić³, Sandra Vezmar Kovačević²**

¹ZUA "Dr Ristić", Medigroup, ²Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade - Faculty of Pharmacy, ³ZUA Lilly drogerie (Serbia)

Patients come to pharmacies on a daily basis looking for advice on how to cure certain conditions by using over-the-counter (OTC) drugs. Our aim was to investigate patients' attitudes towards pharmacists and their role in curing common conditions.

A questionnaire-based survey was conducted in pharmacies in several cities in Serbia. The following data were collected from patients: the most important criterion when choosing a pharmacy, should a pharmacist express an opinion about the therapy, is a pharmacist an expert on OTC drugs, do patients first ask pharmacists about their conditions, is there a need for a family pharmacist and is there a need for an equal price of medicines. Descriptive statistics and Mann-Whitney U test were used, significance was determined by $p < 0.05$.

112 patients participated in the survey. The most important criteria for choosing a pharmacy were competence and kindness (41%), closeness to home (30%) and popular prices (18%). Respondents (87%) considered competence and kindness as very important when choosing a pharmacy, 58% of respondents agreed that pharmacists must express their opinion about the prescribed therapy. 80% of patients considered a pharmacist an expert on OTC drugs. Majority of patients (59%), mainly employed, first sought advice about OTC drugs in pharmacies ($p < 0.05$). Patients with chronic illnesses and > 2 prescribed medicines considered family pharmacists to be useful ($p < 0.05$). Furthermore, 84.8% of patients thought that the prices in pharmacies should be equal. 57.2% patients consulted a pharmacist whose knowledge and experience they trust and afterwards they bought a medicine where they got a better discount.

Employed patients ask pharmacists for advice about common conditions and use of OTC drugs more often. Patients consider pharmacists experts for curing basic health problems. The most common and the most important criteria, when choosing a pharmacy, are competence and kindness of the pharmacist.

INTERAKCIJE LEKOVA U POPULACIJI ODRASLIH I STARIJIH PACIJENATA U PRIMARNOJ ZDRAVSTVENOJ ZAŠTITI

**Milena Kovačević, Janja Mladenović, Milica Ćulafić, Maša Roganović,
Marija Jovanović, Sandra Vezmar Kovačević, Branislava Miljković**

Katedra za farmakokinetiku i kliničku farmaciju, Univerzitet u Beogradu -
Farmaceutski fakultet (Srbija)

Interakcija između dva leka je kvantitativna ili kvalitativna promena delovanja jednog leka usled prisustva drugog, a lek-lek interakcije (LLI) spadaju u uzroke problema sa izborom leka. Procenjeno je da je polovina LLI predvidiva i može se prevenirati. Cilj studije bila je identifikacija i procena potencijalnih LLI u populaciji odraslih pacijenata u primarnoj zdravstvenoj zaštiti, kao i analiza uticaja identifikovanih LLI na kliničke i/ili laboratorijske parametre pacijenta.

Sprovedeno je prospektivno opservaciono istraživanje u apotekama javnog tipa u kojem su učestvovali odrasli pacijenti na hroničnoj terapiji. Podaci o pacijentima i terapiji prikupljeni su na osnovu recepata i iz razgovora sa pacijentom. Identifikacija LLI je vršena pomoću programa *LexiInteract*[®], dok je statistička analiza izvršena pomoću programa *SPSS*[®].

U studiju je bilo uključeno 440 pacijenata, prosečne starosti 70,79±11,64 godina (opseg 56-91). Prosečan broj lekova u terapiji po pacijentu iznosio je 7,39±2,20. Identifikovano je ukupno 3377 interakcija, više od 90% bile su klinički značajne (X, D i C klase). Prosečan broj klinički značajnih LLI po pacijentu iznosio je 6,96±4,80. Najučestaliji tipovi očekivanih posledica su uticaj na kardiovaskularni sistem, nivo glukoze u krvi i uticaj na funkciju bubrega. Pokazana je statistički značajna povezanost između broja lekova i broja klinički značajnih LLI ($p < 0,001$). Ispitivanjem uticaja broja lekova, ukupnog broja LLI, i broja klinički značajnih LLI na kliničke i/ili laboratorijske parametre pacijenta, kao što su krvni pritisak, lipidni profil i parametri glikemije, statistički značajna povezanost identifikovana je za kontrolu lipidnog profila ($p < 0,05$).

U ispitivanoj populaciji pacijenata iz primarne zdravstvene zaštite identifikovanje veliki broj LLI, pri čemu je više od 90% bilo u klasi klinički značajnih. Najveći broj interakcija zahteva praćenje terapije i pacijenta. Prisustvo interakcija bilo je povezano sa kontrolom lipidnog profila, što bi moglo biti u fokusu farmaceuta u primarnoj zdravstvenoj zaštiti.

DRUG INTERACTIONS IN A POPULATION OF ADULT AND OLDER PATIENTS IN PRIMARY CARE

Milena Kovačević, Janja Mladenović, Milica Ćulafić, Maša Roganović, Marija Jovanović, Sandra Vezmar Kovačević, Branislava Miljković

Department of Pharmacokinetics and Clinical Pharmacy, University of Belgrade
- Faculty of Pharmacy (Serbia)

A drug-drug interaction (DDI) is a quantitative or qualitative modification of the drug effect when administered with another drug. It is estimated that half of the DDIs are predictable and can be prevented. The study objective was to identify potential DDIs in a population of adult outpatients, and to assess the DDIs impact on clinical and/or laboratory parameters.

A prospective observational study was performed in community pharmacies. Data for patients on chronic therapy were collected from drug prescriptions and interview. Identification of potential DDIs were performed using LexiInteract®. Statistical analysis were performed using SPSS® software.

A total of 440 patients were included in the study, mean age 70.79 ± 11.64 years (range 56-91). Patients were prescribed 7.39 ± 2.20 drugs, in average. A total of 3377 DDIs were identified, over 90% were clinically significant (X, D and C class). The average number of clinically significant DDIs was 6.96 ± 4.80 . The most common types of harm expected from DDIs were on cardiovascular system, blood glucose level, and kidney function. There was statistically significant correlation between the number of drugs and the number of clinically significant DDIs ($p < 0.001$). The influence of prescribed drugs, the total number of DDIs, and the number of clinically significant DDIs, on clinical and/or laboratory parameters (blood pressure, lipid profile and glycemic parameters) was tested. The statistically significant association was identified for lipid profile ($p < 0.05$).

A significant number of DDIs was identified in the studied population of patients in primary care, where more than 90% was classified as clinically significant. The largest number of DDIs required monitoring of therapy and patient. The occurrence of DDIs was associated with the unsatisfactory control of lipid profile, which could be the focus of pharmacists in primary care.

ULOGA FARMACEUTA U TRETMANU ATOPIJSKOG DERMATITISA-STAV PACIJENATA

Tatjana Mihajlović

ZUA Lilly Drogerie (Srbija)

Atopijski dermatitis ili atopijski ekcem je veoma često oboljenje kože, koje pogađa bebe, decu i odrasle. Kako se kod atopijskog dermatitisa smenjuju akutna, i mirna latentna faza, cilj dobre terapije je da intervali između ovih faza budu što duži, a saveti farmaceuta bi u tome mogli imati veliki značaj. Cilj ovog istraživanja bio je ispitati stav pacijenata o tome kolika je uloga farmaceuta kao najdostupnijeg zdravstvenog profesionalca u tretmanu i terapiji atopijskog dermatitisa.

Anketa (13 pitanja) je sprovedena u 80 apoteka širom Srbije u periodu 15.06-25.06.2018. godine i učestvovalo je 203 pacijenta koji su se izjasnili da imaju problem sa suvom i atopičnom kožom. Farmaceuti su dodatne informacije od značaja zapisivali na osnovu odgovora iz ankete. Korišćena je deskriptivna statistička metoda.

Ukupno je učestvovalo 203 ispitanika uzrasta od 1-74, a od toga je 79% ženskog pola. Najveći broj ispitanih je bio visokog obrazovanja (42%). 83% ispitanika je potražilo pomoć od farmaceuta. Od ovog broja pacijenata, koji su pomoć potražili od farmaceuta, 87% je dobilo preporuku i savet za korišćenje emolijentnih krema za negu kože i kupki, 6,5% dobilo preporuku da koristi isključivo topikalne kortikosteroide. Od ukupnog broja ispitanih 95% je označilo da im saveti farmaceuta pomažu čak i kada imaju terapiju od dermatologa.

Na osnovu rezultata ankete farmaceut je prepoznat kao značajan partner u tretmanu i terapiji atopijskog dermatitisa.

THE PHARMACISTS' ROLE IN THE TREATMENT OF ATOPIC DERMATITIS-PATIENTS' OPINION

Tatjana Mihajlović

ZUA Lilly Drogerie (Serbia)

Atopic dermatitis/atopic eczema is a very common skin disease which is occurring in patients of all ages, from babies to adults. The goal of a good and efficient treatment is to keep the latent phase of this condition as long as it can. Pharmacists as the health-care providers who are easiest to reach, could have a significant role in prevention and treatment of this condition.

The aim of this research was to show the patients' opinion about pharmacists' role in the treatment of their skin problems caused by atopic dermatitis.

Survey with 13 questions was given to the participants during ten days 15.06-25.06. 2018. in 80 pharmacies in ZUA Lilly Drogerie across Serbia. Pharmacists documented important information from the participants. Descriptive statistical analyses were performed.

There were 203 participants aged from 1 to 74 who stated that they had problems with dry and sensitive skin to the certain degree. The majority were females (79%), and also most of them with high education, bachelor degree (41.9%). 83% stated that they went to get help from pharmacists. From that number, 87% got an advice and reference to use some dermocosmetics with the special aim for the treatment and hygiene. Only 6.5% got an advice to use only topical corticosteroids. Over 90% of all participants said that pharmacists help them significantly to deal with their skin condition even when they have proscribed therapy by dermatologist.

Based on the results of the study participants recognized pharmacist as their invaluable partner in the treatment of atopic dermatitis.

SAMOMEDIKACIJA I FAKTORI RIZIKA KOD TRUDNICA NA TERITORIJI GRADA NIŠA

Maja Cvetković, Dušan Ilić, Dušica Stojanović, Marija Tasić-Kostov

Univerzitet u Nišu - Medicinski fakultet (Srbija)

Samomedikacija se definiše kao samostalna primena lekova i biljnih suplemenata koji nisu propisani od strane lekara, gde pacijent preuzima odgovornost na sebe za lečenje ili sprečavanje bolesti, koristeći lekove bez lekarskog recepta. Samomedikacija nosi ozbiljan rizik od međusobne interakcije lekova, pogrešne dijagnoze, prevelike doze leka, produžene primene leka, retkih ili ozbiljnih neželjenih događaja, zavisnosti ili zloupotrebe. Ova studija je imala za cilj ispitivanje prevalencije samomedikacije kod trudnica u Nišu.

Istraživanje je predstavljeno kao deskriptivna studija koja je obuhvatila 103 ispitanice podeljene u tri grupe: od 20 do 25, od 25 do 30 i preko 30 godina, odabrane slučajnim uzorkom u apoteci, u periodu od januara do aprila 2018. godine. Istraživanje je sprovedeno korišćenjem anonimnog upitnika, koji je sadržao pitanja otvorenog i zatvorenog tipa

Rezultati pokazuju da je najveći broj ispitanica, čak njih 77% iz grupe od 20 do 25 godina, prijavilo samomedikaciju u toku trudnoće minimum jednim lekom. Svest o mogućim neželjenim efektima bila je dominantno prisutna u grupi ispitanica preko 30 godina, čak kod njih 62%. Prema rezultatima našeg istraživanja, ispitanice sa višim stepenom obrazovanja i zrelijim uzrastom imaju ispravniji stav prema samomedikaciji, što se može objasniti odgovornijim odnosom prema stanju u kome se nalaze. Nedostatak osiguranja, srednjoškolsko obrazovanje, nepoverenje u zdravstvene radnike i loše prethodno iskustvo su bili najčešći izgovori o samomedikaciji. Osim toga, nedostatak obučenog osoblja, nepouzdati načini snabdevanja medicinskom opremom, finansijska ograničenja, a ponekad i sam zdravstveni sistem utiču na pružanje neadekvatne usluge trudnicama, usled čega dolazi do samomedikacije i upotrebe alternativne medicine.

Neophodno je pružiti javnu obuku svim ženama u reproduktivnom periodu i dati im sveobuhvatne savete i informacije o rizicima i potencijalno štetnim efektima samomedikacije. Pored toga, kako bi se promovisao zdravstveni status ljudi u zajednici i povećalo njihovo znanje, programi obuke moraju biti dizajnirani i u sistemima zdravstvene zaštite.

SELF-MEDICATION AND RISK FACTORS AMONG PREGNANT WOMEN IN THE CITY OF NIŠ

Maja Cvetković, Dušan Ilić, Dušica Stojanović, Marija Tasić-Kostov

University of Niš – Faculty of Medicine (Serbia)

Self-medication is defined as the self-application of medications and herbal supplements that are not prescribed by a doctor, where the patient assumes responsibility for treating or preventing a disease using medicines without a medical prescription. Self-medication carries a serious risk of drug interactions, wrong diagnosis, overdose of the drug, rare or serious unpleasant occurrences, addiction or abuse. The aim of this study was to examine the prevalence of self-medication among pregnant women in Niš.

The research was presented as a descriptive study that included 103 respondents divided into three groups of 20-25, 25-30 and over 30 years of age, selected by random sample in the pharmacy, in the period from January to April 2018. The survey was conducted using an anonymous questionnaire containing open and closed questions.

The results show that the highest number of respondents, as high as 77%, from the group of 20-25 years reported self-medication during pregnancy with at least one medication. Awareness of possible side effects was the highest in the group of respondents of over 30 years of age – 62%. According to the results of our research, respondents with a higher level of education and older age have a more positive attitude towards self-medication, which can be explained by a more responsible attitude towards the state in which they are.

Variables such as the lack of insurance, low level of education, lack of trust in health workers were the most common answers as reasons for self-medication. In addition, the lack of trained staff, unreliable drug distribution chains, limited resources, as well as health system itself, have affected the provision of inadequate services to pregnant women, resulting in self-medication and the use of alternative medicine.

It is necessary to provide a public training to all women in the reproductive age and provide them with comprehensive advice and information on the risks and potential side effects of self-medication. Moreover, in order to promote the health status of people in the community and increase their knowledge, training programs must be designed in the health care systems.

STAVOVI I ZNANJE UČENIKA SREDNJIH MEDICINSKIH ŠKOLA O URGENTNOJ KONTRACENCIJI

Biljana Vasić¹, Tomislav Alavanja²

¹Farmaceutsko-fizioterapeutska škola, Beograd, ²Zubotehnička škola, Beograd (Srbija)

Zdravlje je najveća vrednost čoveka, na koju svako ima pravo. Mladi prolaze kroz period fizičkog i psihičkog sazrevanja. Cilj rada je procena znanja učenika srednjih medicinskih škola o urgentnoj kontracepciji.

U toku analize koristili smo rezultate istraživanja u okviru međunarodnog projekta *E-medica* zajednice medicinskih škola zemalja iz okruženja. Nosilac projekta je Farmaceutsko-fizioterapeutska škola a pored nje su u istraživanju učestvovali medicinska škola iz Zadra i Šibenika i Zubotehnička iz Beograda. Istraživanje je sprovedeno na 480 učenika navedenih škola u toku školske 2017/2018 godine. Ispitivanje je sprovedeno kod učenika nižih i viših razreda sa ciljem da se istakne uloga obrazovanja na stavove i znanja o urgentnoj kontracepciji, kao i razlike u znanju u zavisnosti od uzrasta.

Dobijeni rezultati ukazuju da iako se radi o učenicima stručnih škola, budućim zdravstvenim radnicima nivo znanja o urgentnoj kontracepciji nije na zavidnom nivou. Postoje osnovna ali nedovoljna znanja o urgentnoj kontracepciji.

Nedostatak znanja učenici su pokazali kod primene, mehanizma delovanja i efikasnosti urgentne kontracepcije u zavisnosti od vremena uzimanja. Na pitanje primene Urgentne kontracepcije gde je pružena mogućnost višestrukog izbora, učenici nižih razreda su dali tačne odgovore: 78% Farmaceutsko-fizioterapeutska škola, 72% Medicinska škola Zadar, 45% Medicinska škola Šibenik i 33% Zubotehnička škola Beograd. Učenici viših razreda su na dato pitanje pokazali znanje: 20% Zubotehnička škola, 58% Medicinska škola Šibenik, 76% Medicinska škola Zadar, 94% Farmaceutsko-fizioterapeutska škola. O efikasnosti urgentne kontracepcije od vremena primene tačnost odgovora je sledeća: učenici Zubotehničke škole (0% niži i viši razredi), Šibenika (4% niži i 11% viši razredi) i Zadra (2% niži i 17% viši), a najbolje Farmaceutsko-fizioterapeutske škole (7% niži i 30% viši razredi).

Rezultati ispitivanja koja se odnose na znanje o primeni urgentne kontracepcije ukazuju na potrebu dodatne edukacije mladih u vezi sa reproduktivnim zdravljem, bolju saradnju mladih i zdravstvenih radnika i veću uključenost obrazovnog sistema u očuvanje zdravlja mladih.

ATTITUDES AND KNOWLEDGE OF SECONDARY MEDICAL SCHOOL PUPILS ABOUT EMERGENCY CONTRACEPTION

Biljana Vasić¹, Tomislav Alavanja²

¹Pharmacy and Physiotherapy School Belgrade, ²Dental School Belgrade
(Serbia)

Health is the most valuable thing to person, to which everyone is entitled. Young people go through period of physical and mental maturation. The aim of this paper is to evaluate an attitudes and knowledge on emergency contraception in group of secondary medical school pupils.

During the analysis, we used the results of the research in the framework of the international E-medical project of the medical schools community. The project holder was Pharmacy-Physiotherapeutic School, and beside it, the Medical School from Zadar and Šibenik and Dental School from Belgrade took part in the research. The survey was conducted on 480 pupils of lower and upper grade of these schools during the school year 2017/2018.

The obtained results indicate that, although vocational school pupils are concerned, the level of knowledge about emergency contraception is not at an enviable level for future health professionals. There is basic, but insufficient knowledge about emergency contraception. Pupils have demonstrated the lack of knowledge in the application, mechanism of action and the effectiveness of emergency contraception depending on the time taken. On the question of the application of emergency contraception, where the possibility of multiple choice was provided, the pupils of the lower grades provided the correct answers: 78% Pharmacy-Physiotherapeutic School, 72% Medical School Zadar, 45% Medical School Šibenik and 33% Dental School Belgrade. High-school pupils showed the knowledge on the given question: 20% Dental School, 58% Medical School Šibenik, 76% Medical School Zadar, 94% Pharmacy-Physiotherapeutic School. The accuracy of the response about the effectiveness of emergency contraception from the time of application is: pupils of the Dental School (0% lower and higher grades), Šibenik (4% lower and 11% higher grades) and Zadar (2% lower and 17% higher) and the best Pharmacy-Physiotherapeutic School (7% lower and 30% higher grades).

The results of the research related to the knowledge of urgent contraception highlighted the need for additional education of young people on reproductive health, better cooperation between young people and health workers and greater involvement of the education system in preserving their health.

POLIMEDIKACIJA OSOBA STARIJE ŽIVOTNE DOBI U KANTONU SARAJEVO

Vanja Piljak, Sukejna Redžepi, Nermina Žiga

Farmaceutski fakultet, Univerzitet u Sarajevu – Farmaceutski fakultet
(Bosna i Hercegovina)

Gerijatrijska klinička farmakologija danas dobija na sve većem značaju, obzirom da je u porastu broj starijih osoba sa hroničnim oboljenjima, i to je uglavnom istovremeno uključeno više bolesti, tzv. komorbiditet ili multiborbiditet. Komorbiditet, u najvećem broju slučajeva, za sobom povlači polimedikaciju, odnosno primjenu više od 4 lijeka istovremeno. Takav vid terapije, sa sobom donosi rizik od razvoja nuspojava i interakcija među njima, što je kod starijih osoba posebno izraženo zbog promjene u farmakokinetici i farmakodinamici lijekova. Razlog tome je sam proces starenja koji je praćen usporenim metabolizmom, te smanjenom funkcionalnom sposobnosti pojedinih organa i organskih sistema, prije svega jetre i bubrega. Među najčešće propisivanim lijekovima kod starijih osoba, između ostalog su: antidepresivi, analgetici, antihipertenzivi, antikoagulansi, antireumatici, antiparkinsonici i hipoglikemici.

Cilj rada je pokazati eventualne interakcije ili nuspojave koje se mogu razviti ili su se razvile između najčešće propisivanih lijekova kod osoba starije životne dobi u Kantonu Sarajevo.

Istraživanje je obuhvatilo 100 ispitanika starije životne dobi (>65 godina) u Kantonu Sarajevo. Podaci su prikupljeni u apotekama, na osnovu njihove standardne mjesečne terapije. Elementi koji su se pratili su: dob, broj i vrsta bolesti pod kojima se vode pacijenti, te broj i vrsta propisanih lijekova u okviru terapije. Rezultati su prikazani deskriptivno, tabelarno i grafički. Najviše korišteni lijekovi u skupini ispitanika starijih od 65 godina su iz skupine antihipertenziva, sedativa, analgetika, antidijabetika, diuretika, mukoprotektivnih lijekova, te upotreba raznih kapi za oči, antilipemika i antiaritmika. Uočena je polimedikacija kod 80% pacijenata, a kod 7% pacijenata i neprikladno propisivani lijekovi.

Povećanjem starosne dobi ispitanika raste i zastupljenost polimedikacije, stoga je neophodna edukacija farmaceutske struke u pogledu kontrole racionalne farmakoterapije i prevencije razvoja interakcija i nuspojava lijekova.

POLYMEDICATION IN ELDERLY PATIENTS IN THE SARAJEVO CANTON

Vanja Piljak, Sukejna Redžepi, Nermina Žiga

Faculty of Pharmacy, University of Sarajevo - Faculty of Pharmacy
(Bosnia and Herzegovina)

Geriatric clinical pharmacology is nowadays becoming increasingly significant, considering the increasing number of elderly patients with chronic diseases, who are often suffering from several different diseases – comorbidity or multimorbidity. In most cases, comorbidity involves polymedication, i.e. the use of 4 or more medications simultaneously. This kind of therapy is associated with higher risk of adverse drug effects and drug interactions, which is a matter of particular emphasis in geriatric patients, considering the changes in drug pharmacokinetics and drug pharmacodynamics that these patients experience. These changes occur as a consequence of aging, which involves slower metabolism and decreased function of particular organs, e.g. the liver and kidneys. Most frequently prescribed medications among the geriatric population include: antidepressants, analgesics, antihypertensives, anticoagulants, antirheumatics, antiparkinsonics and hypoglycemics. The objective of this study is to present possible drug interactions or adverse effects that could develop or were already existing between the most frequently prescribed medications among the geriatric population in the Sarajevo Canton.

The study included 100 participants of older age (>65 years) in Sarajevo Canton. The data was collected in pharmacies, based on the patient's standard monthly therapy. The following data was collected: age, number and type of diseases treated in these patients, number and type of prescribed medications used in therapy. The results were presented in the form of description, tables and charts. Most frequently prescribed medication among the group of participants older than 65 years are: antihypertensives, sedatives, analgesics, antidiabetics, diuretics, mucoprotective drugs, as well as many different eye drops, antilipemics and antiarrhythmics. Polymedication was observed in 80% of cases. Inappropriate drug prescription was found in 7% of patients observed in this study.

With the increasing age of the participants, the frequency of polymedication was also increasing, therefore the education of pharmaceutical profession in terms of control of rational pharmacotherapy and prevention of drug interaction and adverse effects development is of the utmost importance.

KOMPLIJANSA U TERAPIJI ARTERIJSKE HIPERTENZIJJE

**Tijana Grebić¹, Slobodan Gigov², Nataša Jovanović Lješković²,
Svetlana Stojkov^{2,3}, Manda Dizdar², Jelena Gigov⁴**

¹Ljekarna Joukhadar (Hrvatska), ²Univerzitet Privredna akademija u Novom Sadu - Farmaceutski fakultet Novi Sad, ³Apoteka Subotica, ⁴Apoteka Galen Novi Sad (Srbija)

Bolesti kardiovaskularnog sistema se povezuju sa 17,7 miliona letalnih ishoda godišnje. Osnovni faktori rizika za nastanak i razvoj KVB su upotreba duvana i alkohola, gojaznost, visok nivo glukoze u krvi i hipertenzija. Prva linija odbrane od nastanka i razvoja KVB je promena načina života i primena nefarmakoloških mera. Cilj istraživanja je analiza komplijanse na primeru lečenja arterijske hipertenzije kao i ispitivanje znanja i životnih navika pacijenata sa dijagnozom arterijske hipertenzije.

Istraživanje je sprovedeno u Novom Sadu i Vukovaru u periodu od 8.marta do 8.aprila 2018.godine, opservacionom metodom na slučajnom uzorku koji su činili pacijenti sa postavljenom dijagnozom hipertenzije. Za prikaz rezultata korišćena je deskriptivna statistika.

U ispitivanom uzorku (300 ispitanika) hipertenzija se očekivano češće javlja kod starijih i gojaznih osoba. Primena beta-blokatora i ACE inhibitora (ACEi) je značajno više zastupljena u Novom Sadu u odnosu na Vukovar, dok se antagonisti AT1 receptora (sartana) mnogo češće koriste u Vukovaru. Značajno češća pojava suvog kašlja u Novom Sadu (64,29%) u odnosu na Vukovar (31,58%) odgovara većoj upotrebi ACEi u Novom Sadu za 57%. Pojava angioedema nije zabeležena u Novom Sadu, dok se u Vukovaru javio kod 15,79% ispitanika. U Novom Sadu se ginekomastija javila kod 7,14% ispitanika, dok u Vukovaru ovo neželjeno delovanje nije primećeno. Ispitanici iz Novog Sada se češće konsultuju sa lekarima u vezi hipertenzije (48,67%) u odnosu na farmaceute (16,00%). U Vukovaru je savetodavna uloga farmaceuta (61,33%) znatno više afirmisana u odnosu na lekare (18,67%).Iako je 80% ispitanika izjavilo da redovno uzima terapiju, normalne vrednosti TA uz terapiju ima svega 40% ispitanika iz Novog Sada, odnosno 35,67% iz Vukovara. Istraživanje je pokazalo da ispitanici u Vukovaru više koriste so u ishrani od ispitanika u Novom Sadu.

Iz našeg istraživanja se može zaključiti da značajan procenat ispitanika nije dovoljno upoznat sa rizicima nelečene hipertenzije i neredovnog uzimanja terapije. Podizanje stepena komplijanse u terapiji hipertenzije je jedna od najznačajnijih uloga farmaceuta kao najdostupnijih zdravstvenih radnika.

COMPLIANCE IN THE THERAPY OF ARTERIAL HYPERTENSION

**Tijana Grebić¹, Slobodan Gigov², Nataša Iovanović Lješковиć²,
Svetlana Stojkov^{2,3}, Manda Dizdar², Jelena Gigov⁴**

¹Pharmacy Joukhadar (Croatia), ²University Business Academy in Novi Sad - Faculty of Pharmacy Novi Sad, ³Pharmacy Subotica, ⁴Pharmacy Galen Novi Sad (Serbia)

Cardiovascular system diseases are the leading cause of 17.7 million lethal outcomes per year. The most important risk factors for occurrence and development of cardiovascular diseases are tobacco and alcohol use, obesity, high level of blood glucose and hypertension. Lifestyle changes and non-pharmacological measures are the first line treatment in prevention of cardiovascular diseases. The main aim of this study was the analysis of compliance using the treatment of the arterial hypertension as an example, as well as the assessment of awareness and lifestyle habits of patients diagnosed with arterial hypertension.

The research was conducted in Novi Sad and Vukovar from 8th March till 8th April 2018, using observational method in random sample of patients diagnosed with hypertension. Descriptive statistics was used for presenting results.

In tested sample (300 respondents) hypertension is expected to occur mostly among older and obese people. Beta-blockers and ACE inhibitors (ACEi) are used significantly more in Novi Sad than in Vukovar, while antagonists of AT1 receptors (sartane) are much more commonly used in Vukovar. Significantly higher presence of dry cough among the respondents in Novi Sad (64.29%) in comparison to Vukovar (31.58%) matches the greater use of ACEi in Novi Sad for 57%. Appearance of angioedema isn't recorded in Novi Sad, while in Vukovar it appeared in 15.79% of respondents. In Novi Sad gynecomastia occurred in 7.14% of respondents, while in Vukovar this adverse effect hasn't been noted. Respondents from Novi Sad are more often prone to consult with doctors about hypertension (48.67%) in regards to pharmacists (16.00%), while in Vukovar the situation is reversed and advisory role of pharmacists (61.33%) is significantly more affirmed than of doctors (18.67%). Although 80% of respondents stated that they regularly take the medications, only 40% of respondents from Novi Sad and 35.67% from Vukovar have normal values of TA while using the medications. Research has shown that respondents in Vukovar use more salt in the diet than respondents in Novi Sad.

From our research we can conclude that significant percentage of respondents are not familiar enough with the risks of untreated hypertension and irregular taking of medications. Raising the degree of compliance in hypertension therapy is one of the most significant roles of pharmacists as the most accessible healthcare professionals.