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CONTENTS

The Medical Biochemistry and Laboratory Medicine are important diagnostic branches	3
Nada Majkić-Singh	
Therapeutic drug monitoring of valproic acid through plasma concentration	5
Verica Jakjimoska, Biljana Gjorgjeska	
<i>In vitro</i> antimicrobial properties of basil and thyme essential oils against <i>Salmonella</i> Spp.	7
Metodija Trajchev, Jasmina Stojiljkovic, Dimitar Nakov, Marija Glavash Dodov, Milena Petrovska	
Protective role of sulforaphane against phthalate and bisphenol A mixture linked hepatocellular carcinoma: <i>in silico</i> toxicogenomic datamining	9
Katarina Baralić, Katarina Živančević, Dragica Jorgovanović, Dragana Javorac, Evica Antonijević, Aleksandra Buha Djordjevic, Marijana Čurčić, Zorica Bulat, Biljana Antonijević, Danijela Đukić-Ćosić	
The ameliorative effect of bioactive phytochemicals (resveratrol, curcumin and sulforaphan) on environmental chemicals evoked inflammation: toxicogenomic data mining approach	11
Katarina Živančević, Katarina Baralić, Dragica Jorgovanović, Danijela Đukić-Ćosić	
Enteral nutrition in Macedonian hospitals	13
Elena Karabeleski, Lidija Petrushevska-Tozi, Emilija Kostoska, Irena Radivojsha, Kristina Mladenovska	
Regulatory status of nutraceuticals – is it rationale to rethink?	15
Tanja Petreska Ivanovska, Zoran Zhivikj, Lidija Petrushevska-Tozi	
Effects of L-2-Oxothiazolidine-4-carboxylate on isoproterenol-induced acute myocardial infarction in rats	17
Marija Angelovski, Dino Atanasov, Mitko Mladenov, Nikola Hadzi-Petrushev	
Cardiovascular toxicity of antineoplastic medicines in Bosnia and Herzegovina	19
Biljana Tubić	
Principal component analysis of sensory attributes of calcium- and magnesium enriched milk	21
Liljana Anastasova, Tanja Petreska Ivanovska, Zoran Zhivikj, Kristina Shutevska, Rumenka Petkovska, Lidija Petrushevska-Tozi	
Mineral enrichment of milk – nutritional benefits and future perspectives	23
Liljana Anastasova, Tanja Petreska Ivanovska, Zoran Zhivikj, Rumenka Petkovska, Lidija Petrushevska-Tozi	
Analysis of ergosterol as a potential contaminant in two herbal raw materials	25
Kristina Varsamovska, Zoran Zhivikj, Marina Topkoska, Tatjana Kadifkova Panovska, Lidija Petrushevska-Tozi, Tanja Petreska Ivanovska	
Vibrational spectroscopy studies on biosynthesized silver nanoparticles	27
Darinka Gjorgieva Ackova, Katarina Smilkov, Aleksandar Cvetkovski, Petre Makreski	
Critical points in Comet assay silver staining procedure	29
Misko Milev, Viktorija Maksimova, Milkica Janeva, Tatjana Ruskovska	
Dietetic approach in patient with type 2 diabetes mellitus - a case report	31
Bojana Janeku, Dafina Boshkoska, Elena Karabeleski, Menka Andreska, Suzana Atanasovikj, Dragana Mladenovska, Kristina Mladenovska, Lidija Petrushevska-Tozi, Tanja Petreska Ivanovska, Aleksandra Kapedanovska Nestorovska	
Dietetic approach in patients with irritable bowel syndrome – a case report	33
Menka Andreska, Bojana Janeku, Dafina Boshkoska, Elena Karabeleski, Suzana Atanasovikj, Dragana Mladenovska, Aleksandra Kapedanovska Nestorovska, Tanja Petreska Ivanovska, Kristina Mladenovska, Lidija Petrushevska-Tozi	

Nutrition in COPD patients - case study	35
Elena Karabeleski, Lidija Petrushevska-Tozi, Bojana Janeku, Suzana Atanasovikj, Dafina Boshkoska, Menka Andreska, Dragana Mladenovska, Tanja Petreska Ivanovska, Aleksandra Kapedanovska Nestorovska, Kristina Mladenovska	
Dietetic approach in patient with dehydration and electrolyte imbalance caused by diarrhea - a case report	37
Dragana Mladenovska, Dafina Boshkoska, Elena Karabeleski, Menka Andreska, Suzana Atanasovikj, Bojana Janeku, Aleksandra Kapedanovska Nestorovska, Tanja Petreska Ivanovska, Kristina Mladenovska, Lidija Petrushevska-Tozi	
Nutritional management of chronic kidney disease – a case report	39
Dafina Boshkoska, Bojana Janeku, Elena Karabeleski, Menka Andreska, Suzana Atanasovikj, Dragana Mladenovska, Jasminka Patcheva, Kristina Mladenovska, Lidija Petrushevska-Tozi, Tanja Petreska Ivanovska, Aleksandra Kapedanovska Nestorovska	
Nutritional support in a patient with burns	41
Suzana Atanasovikj, Bojana Janeku, Dafina Boshkoska, Menka Andreska, Elena Karabeleski, Dragana Mladenovska, Kristina Mladenovska, Lidija Petrushevska-Tozi, Aleksandra Kapedanovska Nestorovska, Tanja Petreska Ivanovska	
The role of omega-3 for improvement of mood, behavior and communication skills in children	43
Elena P. Stanojevska, Roberta Mitrevska	
Consumer perception of risk-benefit of weight loss supplements and building safety	45
Zoran Zhivikj, Tanja Petreska Ivanovska, Marija Karapandjova, Svetlana Kulevanova, Marijana Lonchar Velkova, Lidija Petrushevska-Tozi	
Whose recommendations supplement users believe the most?	47
Suzana Miljković	
Synthesis and antioxidant activity of newly synthesized chalcones	49
Milica Tasić, Nemanja Turković, Branka Ivković, Jelena Kotur-Stevuljevic, Zorica Vujić	
Synthesis and pharmacological trials of new phosphorylated oxazole derivatives antihypertensive properties	51
Iryna V. Nizhenkovska, Kateryna V. Matskevych, Oleksandr V. Golovchenko, Oksana I. Golovchenko	
Synthesis, molecular modeling and evaluation of anticancer activities of some 1-substituted-4-phenyl piperazine derivatives	53
Mehmet Abdullah Alagöz, Zeynep Özdemir, Ceylan Hepokur, H. Eren Bostancı, Tijen Önkol	
Evaluation of acute intraperitoneal toxicity of new germanium coordination compounds	55
Ihor Kryvoi, Iryna Nizhenkovska, Violetta Narokha, Olena Kuznetsova	
In silico analysis of monoamine oxidase B inhibitory activity of 8-substituted xanthine derivatives	57
Iva Valkova, Javor Mitkov, Maya Georgieva, Alexander Zlatkov	
Innovative medicines & managed entry agreements; a happy marriage?	59
Tanja Fens, Maarten J. Postma	
National medicines policy in Poland - pharmacoeconomic and IT solutions	61
Marcin Czech	
Changes in the R&D process and consequences on drug pricing	63
Rubin Zareski	
The most common used antibiotic drugs among dental medicine doctors	65
Mihajlo Petrovski, Olivera Terzieva-Petrovska	
Legal framework for pharmacovigilance in pregnancy and breastfeeding	67
Marijana Danevska, Iskra Pechijareva Sadikarijo, Julijana Sekovska, Katerina Ancevska Netkovska, Zorica Naumovska	
The legal and regulatory framework for vaccine pharmacovigilance	69
Ankica Gestakovska, Brankica Moskovska, Zoran Sterjev, Aleksandra Grozdanova, Ljubica Suturkova, Aleksandra Kapedanovska Nestorovska, Zorica Naumovska	
Legal framework for use of social media in pharmacovigilance	71
Brankica Moskovska, Ankica Gestakovska, Zoran Sterjev, Aleksandra Grozdanova, Ljubica Suturkova, Aleksandra Kapedanovska Nestorovska, Zorica Naumovska	

Contents

Risk management system and risk minimization measures as crucial part in implementation of good pharmacovigilance practice	73
Marija Guleva, Angela Mircheska-Janevska, Zoran Sterjev, Aleksandra Grozdanova, Ljubica Suturkova, Aleksandra Kapedanovska Nestorovska, Zorica Naumovska	
Cost-effectiveness of combination LMWHs/UFH versus UFH/LMWHs for the prevention of postsurgical venous thromboembolism at orthopedic department in Clinical Hospital Stip	75
Biljana Lazarova, Zorica Naumovska, Aleksandra Kapedanovska Nestorovska, Zoran Sterjev, Ljubica Suturkova	
Evaluation of antibiotic consumption in Clinical hospital in Stip for the period 2017-2019	77
Biljana Lazarova, Biljana Eftimova, Lidija Mihailova, Sanja Filkova, Zorica Naumovska, Zoran Sterjev	
Patient registries in regulatory decision making- a survey of Macedonian registries	79
Elona Chilku, Goran Kochinski, Kristina Mladenovska	
Patients' satisfaction and the pharmacist's role in hospital settings	81
Sanja Filkova, Olivera Krstic Nakovska, Sava Pejkovska, Dimitar Karkinski, Jasminka Patcheva	
Patients' knowledge and awareness of herbal medicines efficacy and safety in hospital settings	83
Sanja Filkova, Branka Pashaliska Cvetkov, Jasminka Patcheva, Sava Pejkovska, Olivera Krstic Nakovska, Dimitar Karkinski	
Is there a place for rosuvastatin in the Lp(a) management?	85
Ana Vavlukis, Marija Vavlukis, Aleksandar Dimovski, Gordana Petrushevska, Aleksandar Eftimov, Sashka Domazetovska, Almasa Demirovikj, Kristina Mladenovska	
Perception of risk of adverse drug reactions with non-opioid analgesics by medical students	87
Zorica Stanojević-Ristić, Dragana Valjarević, Aleksandar Čorac, Mirjana Dejanović, Nenad Milošević	
The Pharmacy simulation game- a unique global tool in pharmacy education	89
Tanja Fens, Claudia Dantuma, Katja Taxis	
Devitalizing agents in endodontics	91
Ivona Kovacevska, Mihajlo Petrovski, Olivera Terzieva-Petrovska, Ivo Kovacevski	
Educational program strategy in rising the awareness for adverse drug reactions reporting and improved pharmacovigilance practice in the Republic of North Macedonia	93
Iskra P. Sadikarijo, Marijana Danevska, Vera Georgieva, Zorica Naumovska	
Orally disintegrating tablets (ODTs): a new approach to solid dosage forms	95
Tansel Comoglu	
Pharmaceutical uses of graphene	97
Despina Spasevska Kovacki	
Compounding of ^{99m}Tc-labeled antimicrobial peptide for molecular imaging of bacterial infections	99
Sonja Kuzmanovska, Venjamin Majstorov	
Design of skin-simulating nanoformulations for ceramide replacement in the skin: A preliminary study	101
Hümeýra Şahin Bektay, Emine Kahraman, Sevgi Güngör	
Characterization of chitosan/xanthan gum polyelectrolyte complexes as carriers for ibuprofen: influence of drug encapsulation procedure on complex formation	103
Ana Ćirić, Ljiljana Đekić	
The effect of Kanjiža peloid on skin hydration and skin barrier function	105
Gábor Katona, Slađana Vojvodić, Marina Kalić, Miroslav S. Sarač, Attila Klimó, Nataša Jovanović Lješković	
Development and evaluation of bee venom topical formulation for efficient treatment of arthritis	107
Lejla Mutapćic, Tamara Ivanoska, Angela Mircevska, Eleonora Trajanovska, Ljubica Mihailova, Dushko Shalabaliija, Nikola Bijeljanin, Midhat Jasic, Maja S. Crcarevska, Marija Glavas-Dodov	
Potential irritants and allergens in shampoos-type preparations	109
Isidora Milanović, Jasmina Bašić, Danijela Pecarski, Dragana Dragaš Milovanović	
The presence and type of SAAs in shampoo-type preparations	111
Jasmina Bašić, Isidora Milanović, Danijela Pecarski, Dragana Dragaš Milovanović	

The use of dendrimers as a modern drug delivery platform	113
Elena Drakalska Sersemova, Tanja Vasileva, Bistra Angelovska, Dijana Miceva, Natasha Miteva	
Effect of irradiation on the physicochemical and biopharmaceutical properties of Temozolomide loaded carbon Nanotubes	115
Radmila Ilijeva, Anita Grozdanov, Piotr Ulański, Slawomir Kadlubowski, Marija Runceva, Ana Ivceska, Kristina Mladenovska	
Cross contamination control strategy in multi product pharmaceutical manufacturing facilities	117
Viktorija Velkovska, Meri Davcheva, Milkica Gligorova	
Critical process parameters during semisolid manufacturing	119
Viktorija Veljanoska, Elena Tomovska, Milkica Gligorova	
An introduction of a new generation of Proticles	121
Katja Fresacher, Bettina Huemer, Martin Reiser, Andreas Zimmer	
Membrane interactions and cellular uptake of an amphipathic cell-penetrating peptide as a delivery system for miRNA	123
Ivana Ruseska, Anna-Laurence Schachner-Nedherer, Andreas Zimmer	
Pharmaceutical use of nanocellulose produced by enzymes	125
Patricia Leitner, Chao Zhong, Barbara Petschacher, Bernd Nidetzky, Andreas Zimmer, Christina Petschacher	
Formulation development of prolonged-release matrix tablets - factors influencing drug dissolution rate	127
Oja Ali Memed, Maja Hadzieva-Gigovska, Dejan Kuneski, Eleonora Trajanovska, Packa Antovska, Sonja Ugarkovic, Maja Simonoska Crcarevska, Marija Glavas Dodov	
Effect of variation of active ingredient particle size on the dimension of granules produced with high shear wet granulation process	129
Elizabeta Atanaskova, Natasa Anevskaja Stojanovska, Sonja Ugarkovic	
Influence of sterilisation by irradiation on an antiviral eye ointment	131
Frosina Jovanovic, Eleonora Trajanovska, Ana Atanasova, Emilija Arsovska Popovska, Monika Stojanovska Pecova, Jelena Dimitrovska, Suzan Memed Sejfulah, Packa Antovska, Sonja Ugarkovic	
Optimization of tablet compressing process using experimental design approach	133
Katerina Tnokovska, Krume Toshev, Bojana Trifunovska Vulovska, Packa Antovska, Sonja Ugarkovic	
Effect of binder, lubricant and compression force levels on hardness and disintegration time of immediate release tablets with a high-dose API - a 3³ full-factorial design	135
Krume Toshev, Natasha Anevskaja Stojanovska, Sonja Ugarkovic	
Effect of process scale-up on granulate, tablets properties and dissolution behavior in immediate release fixed-dose combination product	137
Nadica Vanova, Roza Markovski, Elena Kazandzievska, Lile Zdraveska, Monika Kostovska, Packa Antovska, Natasa Anevskaja Stojanovska, Sonja Ugarkovic	
Psoriasis therapy: Current state and future prospects	139
Beti Djurdjic, Vjeroslava Slavic	
Formulation and evaluation of a solid self-emulsifying drug delivery system containing cefuroxime axetil	141
Eleonora Trajanovska, Frosina Jovanovic, Ana Atanasova, Maja Hadzieva Gigovska, Oja Ali Memed, Packa Antovska, Sonja Ugarkovic, Marija Glavas Dodov	
Compounded omeprazole suspension - stable or not?	143
Ognjenka Rahić, Edina Vranić, Jasmina Hadžiabdić, Merima Sirbubalo, Amina Tucak	
Importance of stabilizers of nanocrystals of poorly soluble drugs	145
Jasmina Hadžiabdić, Semra Brekalo, Ognjenka Rahić, Amina Tucak, Merima Sirbubalo, Edina Vranić	
Fabrication of 3D-printed PLA microneedles as physical permeation enhancers in transdermal delivery	147
Merima Sirbubalo, Mirela Camović, Amina Tucak, Kenan Muhamedagić, Ognjenka Rahić, Jasmina Hadžiabdić, Lamija Hindija, Ahmet Čekić, Marija Glavas-Dodov, Edina Vranić	
Characterization of physicochemical properties of substances using chromatographic separation methods	149
Natalija Nakov, Jelena Acevska, Katerina Brezovska, Zoran Kavrakovski, Rumenka Petkovska, Aneta Dimitrovska	

Contents

Quality study of insulin formulations	151
Blerta Pajaziti, Attila Gaspar, Melinda András, Dashnor Nebija, Rumenka Petkovska	
RP-HPLC a valuable tool in monitoring dissolution test of fixed combination dosage forms	153
Ela Hoti, Fabiola Noga, Aurora Tafa, Elton Myftari	
Competency-based training system	155
Mena Ivanoska Zdravkovska, Silvija Saveska, Dafinka Damcevska, Blagica Samarova Stoev, Tatjana Bogovska, Nada Stojanoska, Milena Dobrkovic Shotarowska, Marina Mandzukovska Micevska, Hristina Babunovska	
On-going stability studies in climatic zones III and IV	157
Milena Nanov, Nadica Boeva, Kristina Jozikj, Ana Vavlukis, Jana Pop Nikolova, Stefan Davidovski, Sanja Despotovska	
Risk assessment on temperature and relative humidity deviation during on-going stability studies	159
Dragana Kafedziska, Marina M. Micevska, Petranka P. Janoska, Elena Cvetanovska, Mena I. Zdravkovska, Milos Todorovski, Aleksandar Janusevski, Magdalena Blazevska, Hristina Babunovska	
Optimization and validation of HPLC method for determination of related and degradation products in Paracetamol tablets 500 mg	161
Aleksandra Damjanoska, Cveta Dolikjaska Trajkova, Aneta Lazarevska Kamcheva, Nikola Pavleski, Hristina Babunovska	
Regulatory approaches for medicines containing established active substances in USA	163
Bojana Danilova, Jasmina Tonic Ribarska, Suzana Trajkovic Jolevska, Katerina Brezovska, Jelena Lazova	
Some challenges in global clinical development of generic products	165
Rozeta Mileva Peceva, Jasminka Patcheva, Snezana Petrovska	
Social aspect as a part of HRQoL in patients with cystic fibrosis in Republic of North Macedonia	167
Zoran Nakov, Stojka Naceva Fushtikj, Stevce Acevski, Jasmina Tonic Ribarska, Suzana Trajkovic Jolevska	
Implementation of the new EMA methodology of defining risks and the HaRP methodology in the EU Risk Management Plan for Ibuprofen 40 mg/mL oral suspension	169
Vladimir Kostovski, Irina Dukovska, Ivona Trpenoska Aleksovska, Ace Kuzmanovski, Sofija Dimkoska, Marija Crcarovska, Natasha Vukikjevikj	
Quality-by-design based development of a stability indicating method for antiviral ophthalmic ointment	171
Emilija Arsovska Popovska, Filip Gogu, Nina Peneva, Frosina Jovanovic, Eleonora Trajanovska, Suzan Memed Sejfulah, Ana Atanasova, Packa Antovska, Sonja Ugarkovic	
Monitoring the changes in ALP, AST and LDH activity during short-term orthodontic treatment using multivariate algorithms for chemometric data analysis	173
Liljana Anastasova, Angela Tasevska, Natasa Toseska Spasova, Mirjana Popovska, Rumenka Petkovska	
Collection, sample preparation and analytical methods for determination of therapeutic levels of drugs in gingival crevicular fluid – a review	175
Liljana Anastasova, Mirjana Popovska, Rumenka Petkovska	
Determination of fluoroquinolone antibacterial residues in milk by LC-MS/MS method	177
Gjylai Alija, Zehra Hajrullai-Musliu, Risto Uzunov, Drita Havziu, Arlinda Haxhiu-Zajmi, Edita Alili-Idrizi, Agim Shabani	
Evaluation of biomarker activity in gingival crevicular fluid during short-term orthodontic treatment: comparison between mesial and distal sites	179
Angela Tasevska, Liljana Anastasova, Rumenka Petkovska, Natasa Toseska-Spasova, Mirjana Popovska	
Quantification using GC/ECD: challenges and pitfalls	181
Ana Poceva Panovska, Jelena Acevska, Gabriela Petrovska Dimitrievska, Katerina Brezovska, Natalija Nakov, Zoran Kavrovski	
Development and validation of a RP-HPLC method for simultaneous determination of terbutaline sulfate, guaifenesin, bromhexine hydrochloride and sodium benzoate in a syrup formulation	183
Marjan Piponski, Tanja Bakovska Stoimenova, Kristina Grncharoska, Martina Miloshevska, Irena Slaveska Spirevska, Emilija Pockova, Elena Petrovska, Marjan Velkovski	

A fast and simple HPLC method for determination of mesalazine impurities A and C in raw material and finished pharmaceutical products	185
Marjan Piponski, Tanja Bakovska Stoimenova, Irena Slaveska Spirevska, Stefan Stefov, Elena Lazarevska Todevska, Marina Topkoska, Gordana Trendovska Serafimovska	
Safety aspects of products, food supplements, intended for weight loss treatment	187
Blagica Samarova Stoev, Dafinka Damcevska, Silvija Saveska, Tatjana Bogovska, Nada Stojanoska, Mena I. Zdravkovska, Hristina Babunovska	
Herbal food supplements safety and future regulation challenges	189
Marjan Dzeperovski	
Drug-device combinations and Article 117: more questions than answers?	191
Elena Ivanovska, Jelena Lazova, Suzana Trajkovic Jolevska, Jasmina Tonic Ribarska, Nada Popstefanova, Marija Davcheva Jovanoska	
Good Distribution Practice in preserving the integrity and safety of the supply chain of pharmaceuticals	193
Filip Cvetanovski, Nikola Kocev, Jasmina Tonic-Ribarska, Suzana Trajkovic-Jolevska	
ISO 14971:2019 - Implication to the medical devices manufacturer's quality system with emphasis of post – production Activities	195
Marija Davcheva Jovanoska, Elizabeta Karadzinska, Nada Popstefanova, Olivera Paneva, Suzana Trajkovic Jolevska, Jasmina Tonic Ribarska, Jelena Lazova, Elena Ivanovska	
Community pharmacies in North Macedonia – legal status	197
Bistra Angelovska, Elena Drakalska, Dijana Miceva	
Safe and effective medicines for all - one day project in Serbian pharmacies	199
Tatjana Šipetić, Ivana Tadić, Dragana Rajković, Sandra Vezmar Kovačević, Milica Čulafić, Tatjana Milošević, Jelena Stefanović Vojinović, Suzana Marinković, Mika Simišić	
Approaches for regulation of the “off- label use” within the European Union	201
Maria Drenska, Ilko Getov	
The impact of clinical pharmacy-led medicines management support for patients with COPD	203
Olivera Krstic Nakovska, Dejan Dokic, Dimitar Karkinski, Sava Pejkovska, Elena Janeva, Sanja Filkova, Zorica Naumovska, Aleksandra Kapedanovska Nestorovska, Ljubica Suturkova	
Satisfied customers and Good Commercial Practice challenge for the pharmacy law in the cosmetic industry	205
Katerina Ancevska Netkovska, Jadranka Dabovikj-Anastasovska	
Changes in intellectual property systems in Commonwealth of Independent States and their harmonization within Eurasian Economic Union	207
Marija Mitkovska, Katerina Anchevska Netkovska, Ana Poceva Panovska	
Attitudes and practice of pharmacists in pharmaceutical waste management – a pilot study in the city of Novi Sad	209
Svetlana Stojkov, Nataša Jovanović Lješković, Milan Ilić, Jovana Vasiljković, Slobodan Gigov	
Intellectual property rights and drug advertising in Republic of North Macedonia	211
Biljana Nestorovska Gjosevska, Katerina Ancevska Netkovska, Marija Glavas Dodov	
Safety limitations of fluoroquinolones' use	213
Violeta Getova, Ilko Getov	
Molecular docking of monoamine oxidase A with xanthenes from <i>Hypericum perforatum</i> roots	215
Marija Todorovska, Jovana Georgieva, Oliver Tusevski, Sonja Gadzovska Simic	
Leukotriene receptor antagonist (LTRA) added to regular preventive therapy: inhaled corticosteroids and long-acting beta agonists (ICS/LABA) in patients with severe uncontrolled asthma	217
Elena Jovanovska-Janeva, Dejan Dokic, Biserka Kaeva, Gorica Breskovska, Zlatica Goseva, Zoran Arsovski, Olivera Krstic Nakovska, Dejan Trajkov, Magdalena Dimitrova Genadieva	
Freeze-drying of nanostructured lipid carriers loaded with <i>Salvia off.</i> extract for Alzheimer's disease treatment	219
Iskra Karakash, Jovana Vasilevska, Dushko Shalabaliya, Ljubica Mihailova, Marija Glavas Dodov, Renata Slaveska Raicki, Maja Simonoska Crcarevska	

Contents

Evaluation of the <i>in vitro</i> bee venom release and skin absorption from bioadhesive gel formulation	221
Angela Mircevska, Tamara Ivanoska, Lejla Mutapcic, Dushko Shalabalija, Ljubica Mihailova, Maja S. Crcarevska, Metodija Trajchev, Dimitar Nakov, Marija Glavas Dodov	
Pharmaceutical care - a patient right to health care service in R.N. Macedonia	223
Iskra Jordanovska, Katerina Anchevska-Netkovska, Aleksandra Kapedanovska Nestorovska, Aleksandra Grozdanova	
The influence of surfactants on the content of clindamycin phosphate in macrogol based compounded vagitories	225
Vesna Savić, Slavica Sunarić, Jelena Živković, Milica Martinović, Ivana Nešić, Ivana Gajić	
Effects of formulation and sol-gel synthesis conditions on physical stability and chemical structure of organomodified silica nanoparticles: a screening study	227
Teodora Dimkovska, Beti Djurdjic, Katerina Goracinova, Boban Mugosa, Nikola Geskovski	
Community pharmacists' attitudes toward the chronic disease management in R.N. Macedonia – part II	229
Donka Pankov, Nikola Geskovski, Maja Simonoska Crcarevska, Marija Glavas Dodov	
Prosthodontic practice challenges post COVID-19 outbreak	231
Borjan Naumovski, Marjan Petkov, Svetlana Gacheva Cvetkova, Sanja Panchevska	
Dental prosthetic materials and adverse drug reactions in everyday prosthodontic practice	233
Borjan Naumovski, Vesna Jurukovska Shotarovska, Aneta Mijoska, Sasho Elenchevski	
Nanostructured lipid carriers as drug delivery systems for miRNA	235
Amina Tucak, Merima Sirbubalo, Jasmina Hadžiabdić, Ognjenka Rahić, Ivana Ruseska, Andreas Zimmer, Edina Vranić	

Perception of risk of adverse drug reactions with non-opioid analgesics by medical students

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Introduction

Education about adverse drug reactions (ADRs) for public, healthcare professionals and medical students is the most important for reducing of drug-induced patient harm.

Some studies have already investigated patient's knowledge about prescribed medicines (Cullen et al., 2006). Bongard et al. (2002) have shown major differences in the perception of risk of ADRs between health and non-health professionals. In this particular study, non-health professionals and pharmacists did not rank high non-steroidal anti-inflammatory drugs (NSAIDs) for perceived risk of ADRs compared to general practitioners and pharmacovigilance professional. Montastruc et al. (2003) found differences in the perception of risks of gastrointestinal ADRs with NSAIDs, including coxibs among physicians according to their medical specialization. Rheumatologists systematically considered NSAIDs as less harmful than general practitioners and gastroenterologists. This result may indicate that these physicians are involved more frequently in NSAID-induced ADRs than rheumatologists.

Differences in ADR risk perception has been illustrated in a study of French medical students

(Durrieu et al., 2007). The study assessed the effect of education on students' perception of ADR risks factors. Before taking a pharmacology course the students ranked NSAIDs in eight position, aspirin in twelfth position. After the course the order of risk perceptions changed to NSAIDs to fifth position and aspirin to fourth position. These results indicate significance of education on improving medication prescribing.

The aim of the study was to evaluate perceived risk of ADRs with non-opioid analgesics in young medical students and to investigate the impact of medical education on their perception of risk.

Materials and methods

A cross-sectional, questionnaire-based study was conducted among medical students of first and sixth year of study on Faculty of Medicine, University of Priština – Kosovska Mitrovica. The approval from Ethics Committee of the institution was obtained before the start of the study.

The study was conducted for the period of 2 months from April through May, 2019.

The total number of respondents was 205, of whom 45 were excluded because of incomplete data. The paper-based questionnaire was designed so that

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the respondents could select more than one answer, or enter the appropriate data.

The questionnaire was divided into 3 sections. The first section included demographic information about students. The second section investigated the respondents' perception of risk of ADRs next classes of non-opioid analgesics: paracetamol, aspirin, indomethacin for indolic derivatives NSAIDs, piroxicam for oxicam derivatives NSAIDs, diclofenac for arylcarboxylic derivatives NSAIDs and rofecocib for coxibs. The third section investigated the risk of ulcerogenic activity, gastrointestinal bleeding, liver and kidney damage, bronchospasm and thromboembolism associated with the use of each class of non-opioid analgesics.

A visual-analogue scale (VAS) was used to define a score for the perceived risk of ADRs. The scores were compared using Mann-Whitney U test. Differences were considered to be significant if the p value was less than 0.05.

Results and discussion

A total of 78 medical students of the first (MS1) and 81 medical students of the sixth (MS6) year of study completed the questionnaire giving the response rate of 78%. 63% of respondents were female and 37% were male. There was a significant age difference between the groups (19.6 vs. 23.6, $p < 0.001$).

Both group of students ranked indolic derivatives of NSAIDs and coxibs as the most dangerous classes of non-opioid analgesics with high potentials for ADRs. Also, they considered that paracetamol was the least dangerous non-opioid analgesic. When NSAIDs and coxibs were considered together, the global median score of perceived risk of ADRs was 4.5 vs. 4.7 (MS1 vs. MS6), which was a statistically very significant difference ($p < 0.001$). Clearly, at the end of their study, medical students become more cautious in the perception of risk of ADRs. Earlier studies have shown that NSAIDs were the pharmacological class most frequently involved in hospital admissions due to an adverse effect of a prescribed drug (Pouyanne et al., 2000).

For NSAIDs, MS6 gave significantly higher median scores of perceived "digestive risk" than MS1 (6.1 vs. 5.1, $p = 0.020$). But unexpected, the perceived "thromboembolism risk" associated with the use of NSAIDs (including coxibs) was higher in MS1 than MS6 (5.8 vs. 4.8, $p = 0.007$).

Conclusion

These results indicate that medical education gives young medical students a better understanding of the risks of potential ADRs. However, their perception of risk indicates the need for further education. Besides the influence of medical educations, other important factors, like information in the various media, have to be considered to explain the difference in the perception of risks related to drugs.

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