FACULTY OF PHARMACY
IN HRADEC KRÁLOVÉ
Charles University

12th Postgraduate and Postdoc Conference

1. – 2. February 2022

Abstracts

Section 2 - Clinical and Social Pharmacy

EFSA-CDN

This conference is supported by the EFSA-CDN project (Reg. No. CZ.02.1.01/0.0/0.0/16_019/0000841)
co-funded by the European Union

EUROPEAN UNION
European Structural and Investment Funds
Operational Programme Research,
Development and Education

MINISTRY OF EDUCATION,
YOUTH AND SPORTS

CSP1

ELECTRONICALLY MONITORED MEDICATION ADHERENCE AND BEHAVIOURAL ASPECTS OF DIRECT ORAL ANTICOAGULANTS

DVORACKOVA, S.,[1] KOLMANOVA, E.,[1] SISAKOVA, M.,[2] BRABEC, M.,[2] PENKA, M.,[3] KALA, P.,[2] MALY, J.,[1] MALA-LADOVA, K.[1]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Internal Medicine and Cardiology, University Hospital Brno and Medical Faculty of Masaryk University, Brno, Czech Republic

[3] Department of Clinical Hematology, University Hospital Brno and Medical Faculty of Masaryk University, Brno, Czech Republic

e-mail: dvoracsi@faf.cuni.cz

Several aspects must be considered, including the patients' views and attitudes to direct oral anticoagulants (DOACs) while studying the medication adherence (MA). The aim of this study was to analyze MA to long-term use of DOACs in patients with atrial fibrillation (AF) focusing on the medication taking and timing regimen. This is an ongoing prospective single-center follow-up study conducted in the University Hospital Brno since May 2021. Adult outpatients with AF taking DOACs at least 3 months were invited for an initial structured interview and two follow-up visits after 3 and 6 months. Self-reported MA and beliefs about medicines were measured by Czech validated questionnaires (MARS-CZ, BMQ-CZ) as well as awareness patterns about DOACs. The Medication Event Monitoring System (MEMS) buttons attached to medication dispenser or pillbox were employed to electronically monitor the MA. The data were analyzed using IBM SPSS Statistics 27.0.1 and MEMS Adherence software (AArdex group). The study cohort included 101 patients, who were mostly retired, high school educated, not living alone and they reported their health status as good. Most of patients confirmed regular medication taking of DOACs. The BMQ-CZ questionnaire showed low concerns score (1.70) and relatively high necessity score (3.81). After three months, 91.75 % MA was assessed by MEMS buttons in 60 patients. This is the unique study conducted in the Czech Republic in patients with DOACs including electronic technology. The MA adherence seems to be high, and patients feel high need of the treatment with low concerns about DOACs. Other factors and results need to be further analyzed, when all patients will end the follow-up.

The study was supported by Charles University grant (SVV 260 551).

INFLAMMATORY BLOOD PARAMETERS AFTER TOTAL HIP OR KNEE ARTHROPLASTY

DOMECKY, P.,[1] REJMANOVA, A.,[1] KUCERA, T.,[2] SPONER, P.,[2] MALY, J.[1]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Orthopedics, University Hospital Hradec Králové, Czech Republic

e-mail: domeckyp@faf.cuni.cz

Total hip (THA) or total knee (TKA) arthroplasty is large surgical procedure with excessive risk for postoperative complication (PO). This study aimed to investigate the inflammatory blood parameters (IBP) predictive value for PO including surgical site infection (SSI) after THA or TKA. This prospective study has started in March 2020 at the Department of Orthopedic, University Hospital Hradec Kralove. Patients aged ≥ 18 years who underwent primary THA or TKA and met the entry criteria were included. IBP, namely neutrophil-to-lymphocyte ratio (NLR), prognostic inflammatory and nutritional index (PINI: prealbumin, albumin, orosomucoid, c-reactive protein), intensive care infection score (ICIS) and nutritional risk index (NRI) were analyzed one day before surgery (-1D), two days after surgery (2D) and during outpatient check after discharge (OC). Postoperative complications were evaluated by orthopedists. Furthermore, the sensitivity (SI), specificity (SP) and area under the curve (AUC) using receiver operating characteristic curves were calculated. 95 patients (43 women and 52 men) with an average age of 65.3 ± 9.11 years were included in the study. THA and TKA were performed in 65 (68.4%) and 30 (31.6%) patients respectively. SSI was identified in 3 (3.2%) patients and overall PO in 7 (7%) patients. Until now, the statistical significances were found for the following IBP: OC-C-reactive protein-SSI (AUC: 0.737; SI: 1.00; SP: 0.60); OC-PINI-SSI (AUC: 0.800; SI: 1.00; SP: 0.75); OC-Prealbumin-SSI (AUC: 0.728; SI: 1.00; SP: 0.50); -1D-NRI-PO (AUC: 0.703; SI: 1.00; SP: 0.53); 2D-NRI-PO (AUC: 0.706; SI: 0.71; SP: 0.65); OC-NRI-PO (AUC: 0.718; SI: 1.00; SP: 0.57); 2D-NLR-SSI (AUC: 0.692; SI: 0.67; SP: 0.73). Among investigated IBP, part of them could be used to predict the risk of PO or SSI. Additional patients with proper follow-up are currently needed for appropriate statistical analysis.

The study was supported by Charles University (Project SVV 260 551).

CSP3

DRUG-DRUG INTERACTIONS IN PATIENTS ADMITTED TO THE HOSPITAL VIA THE EMERGENCY DEPARTMENT: PRELIMINARY RESULTS

OČOVSKÁ, Z.,[1] MAŠKOVÁ, D., [1] HOLMANOVÁ, K., [1] MAŘÍKOVÁ, M.,[1] VLČEK, J.,[1,2]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Clinical Pharmacy, Hospital Pharmacy, University Hospital Hradec Králové, Czech Republic

e-mail: ocovskaz@faf.cuni.cz

This cross-sectional study aims to identify drug-drug interactions (DDIs) in the medication history of patients acutely admitted to University Hospital Hradec Králové via the department of emergency medicine in August–November 2018 and to assess their association with hospital admissions. Primary outcomes include the prevalence of hospital admissions with at least one potential DDI in the medication history and the prevalence of hospital admissions with at least one manifest DDI that contributed to the hospital admission.

The identification of potential DDIs was performed using IBM Micromedex, Lexicomp® Drug Interactions (via UpToDate), Stockley's Interactions Checker (via MedicinesComplete), and DrugAgency a.s. database of DDIs. A potential DDI was defined as a DDI with at least moderate severity category in at least one drug interaction database. The causality assessment was performed using Drug Interaction Probability Scale (DIPS). A manifest DDI that contributed to the hospital admission was defined as a DDI with clinical manifestation related to the main or contributory reason of hospital admission with a DIPS score of at least 2 points.

A sample of 753 hospital admissions has been analyzed so far. The screening for potential DDIs was performed in 600 hospital admissions (hospital admissions with at least two medications in the medication history). Based on the preliminary findings, the prevalence of hospital admissions with at least one potential DDI was 70% (95% CI: 67–73). The prevalence of hospital admissions with a manifest DDI contributing to hospital admission was 4.5% (95% CI: 3–6). The most common manifest DDIs contributing to hospital admissions included the combination of medications with antithrombotic effect and the combination of medications with central nervous system depressant effect. The causality assessment of pharmacokinetic DDIs was not performed due to the cross-sectional design of the study.

The study was supported by Charles University (Project SVV 260 551, Project GA UK 14120).

CSP4

PHARMACY PRACTICE IN OSTRAVA IN THE 2ND HALF OF THE 20TH CENTURY

ŽÁK, O.,[1] BABICA, J.[1, 2]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Czech Pharmaceutical Museum, Charles University, Czech Republic

e-mail: zakon@faf.cuni.cz

The goal of the lecture is to present the results of the research, which aims to map in detail the development of pharmacy practice in Ostrava in the second half of the 20th century and on this basis to compare the state of pharmacy practice between 1945-1989 with the current pharmacy practice.

The system of organization of pharmacy practice in Czechoslovakia differed substantially in the period of state health care before 1989 and after its subsequent transformation. It can be assumed that pharmacy practice before the transformation contained several positive organizational and practical elements that disappeared from pharmacy after the transition to the European pluralist (Bismarckian) health care system. One of these elements was a national pharmacy service with the most important management level at the regional level. On the one hand, it provided relatively accessible pharmaceutical care to the population of Czechoslovakia and at the same time maintained a uniform standard of practice throughout the territory, with an increasing emphasis on the medical character of pharmacy services, but on the other hand it was marked by a few negative factors (shortage of staff, stagnation or obsolescence of technical equipment, supply shortages, etc.).

It can be assumed that contemporary pharmacy could benefit from the knowledge gained from this research, leading to more efficient and accessible pharmacy care overall.

The existing pharmaceutical historiographical literature is mainly devoted to the general and basic features of the development of the domestic organization and management of pharmacy services in the second half of the 20th century at the national level. The topic has not been treated in detail and at the regional level so far.

The study was supported by Charles University (Project SVV 260 551).

CSP5

INAPPROPRIATE HYPNOSEDATIVE DRUG USE AND COGNITIVE IMPAIRMENTIN OLDER PATIENTS IN ACUTE AND AMBULATORY CARE: INOMED AND EUROAGEISM H2020 PROJECT FINDINGS

ANTONENKO, O., [1] PULDOVÁ, K.,[1] ZELINKOVÁ, A.,[1] HALAČOVÁ, M.,[1,2] GREŠÁKOVÁ, S.,[1] BRKIC, J.[1], FIALOVÁ, D.,[1,3]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Clinical Pharmacy, Hospital Na Homolce, Prague, Czech Republic

[3] Department of Geriatrics and Gerontology, 1st Faculty of Medicine and General Teaching Hospital, Charles University, Czech Republic

e-mail: antonenol@faf.cuni.cz

Cognitive impairment and insomnia are frequently observed in patients with neuropsychiatric disorders. On the other hand, inappropriate treatment with hypnosedatives increases the risk of developing various neurocognitive symptoms, especially in older patients. Insomnia and cognitive impairment are common phenomena mainly in acute care due to multiple aggravating risk factors. The aim of our study was to determine the prevalence of insomnias and cognitive problems in acute and ambulatory care seniors in the Czech Republic. Evaluated data were collected usingcomprehensive geriatric assessment protocols of the the EUROAGEISM H2020 project in 438 acutely hospitalised and 563 ambulatory care geriatric patients (≥65 years) in from regionally diferent study sites in the Czech Republic (Prague, Brno, Hradec Králové). In total, insomnia has been diagnosed in 16.9 % (N=74) and 30.6 % (N=172) older patients in acute and ambulatory care, respectively. Cognitive impairment (CI) was diagnosed in 10,7 % (N=47) and 34,8 % (N=196) of older patients in these setttings of care. In acute sample non-geriatric doses were determined in users of Z-drugs (10.5 %), in non-geriatric length were presciribed Z-drugs (5.9 %>1month), BZDs e/n (5,3%>1month). Among patients in ambulatory sample nongeriatric doses and nongeriatric duration of therapy were the most often prescribed Z-drugs (6.0% and 2,7% >4, respectively), BZDs (2,7% and 11% >4 weeks, respectively). Inappropriate patterns of hypnosedative drug use were confirmed as frequent findings in the studied population and their associations with neurocognitive symptoms will be further tested in advanced multivariate analyses.

The study was supported by projects: EuroAgeism Horizon 2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Progress Q42- Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and ICARE4OLD H2020 -965341.

References

CSP5

1. LIM, AS., KOWGIER, M., YU, L., BUCHMAN, AS., BENNETT, DA.: Sleep fragmentation and the risk of incident Alzheimer's disease and cognitive decline in older persons. Sleep. 2013, 36:1027- 1032. 10.5665/sleep.2802

2. ISAIA, G., CORSINOVI, L., BO, M., *et al*.: Insomnia among hospitalized elderly patients: Prevalence, clinical characteristics and risk factors. Arch Gerontol Geriatr. 2011;52(2):133–7.

3. DE FAZIO, P., MANFREDI, V., GARERI, P., *et al:* Use of atypical antipsychotics in the elderly: a clinical review. Clinical Interventions in Aging. 2014; 9: 1363-1373.

CSP6

IMPACT OF CLINICAL PHARMACIST-LED ANTICOAGULATION MANAGEMENT USING PHARMACOGENETICS OF WARFARIN IN PATIENTS AFTER IMPLANTATION OF LEFT VENTRICULAR ASSIST DEVICE

GREGOR, S.,[1, 2] MERTA, D.,[3] IVAK, P.,[4] CHRAPKOVA, K.,[2] HOJNY, M.,[2] NETUKA, I.,[4] MALY, J.,[1]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Hospital Pharmacy, Institute for Clinical and Experimental Medicine, Prague, Czech Republic

[3] Department of Anaesthesiology and Intensive Care Medicine, Institute for Clinical and Experimental Medicine, Prague, Czech Republic.

[4] Department of Cardiovascular Surgery, Institute for Clinical and Experimental Medicine, Prague, Czech Republic

e-mail: gregorstanislav@centrum.cz

All patients after implantation of left ventricular assist device require anticoagulation by warfarin.[1] Warfarin management is challenging. Genetic and non-genetic factors contribute to the warfarin dose variability. The most important genes consistently affecting warfarin dose among different populations are the CYP2C9 and VKORC1.[2] Pharmaceutical care increases time in therapeutic range (TTR) of patients with warfarin.[3] The aim of the study was to compare TTR of intervention and control groups within 12 weeks after warfarin initiation. Pharmacogenetic screening was performed in the intervention group and anticoagulation was managed by clinical pharmacist. Warfarin dosing was guided by physician in the control group and the results of genetic testing were blinded. 22 subjects completed the study from July 2020 to December 2021. Around total of 70 subjects are planned to be enrolled in the study. The interim results will be presented.

The study was supported by PROGRES Q 42.

References

1. BAUMANN KREUZIGER LM., KIM B., WIESELTHALER GM. J. Thromb. Haemost., 13(6), 2015, 946-955.

2. BADER LA., ELEWA H. PLoS One, 11(12), 2016, e0168732.

3. MARCATTO LR., SACILOTTO L., TAVARES LC., *et al*.:. Front Pharmacol. 9, 2018, 1052.

CSP7

CLINICAL PHARMACEUTICAL CARE IN OUTPATIENTS WITH CHRONIC LYMPHOCYTIC LEUKEMIA

ROZSÍVALOVÁ, P.,[1,2] ŠIMKOVIČ, M.,[3] MALÝ, J.[1]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Hospital Pharmacy, University Hospital Hradec Králové, Czech Republic

[3] Department of 4th Internal Medicine, University Hospital Hradec Králové, Czech Republic

e-mail: thomsonp@faf.cuni.cz

Chronic lymphocytic leukemia (CLL) is one of the most common types of leukemia in Europe. Every year, around 600 patients with mean age of 70 years are diagnosed with CLL in the Czech Republic. With the advent of costly targeted oral oncolytic therapies (Bruton tyrosine kinase and BCL-2 inhibitors) in highly heterogeneous patient population with CLL, survival rates have improved. In the context of cancer therapy as such, there are very few published papers that address the impact and effectiveness of clinical pharmaceutical care (CPC).[1,2] The aim of the study is to perform exploratory evaluation and assess impact and feasibility of CPC provision on safe prescribing and improved adherence to high cost targeted oral treatment in CLL outpatients. Hypothesis will be tested using experimental mixed design with single-centre prospective parallel group randomized evaluation comparing an intervention group (CPC+standard of care) and a control group (standard of care) in CLL outpatients. CPC will be performed by a specialized haematology clinical pharmacist. The allocation of 1:1 based on stratification using the criteria of age, patient fitness category and treatment regimen will be used to avoid selection bias in both groups. All patients shall receive written information on targeted therapy, prepared in cooperation and agreement with Czech CLL Group. Primary outcome measures include prevalence of drug-related problems, discontinuation rate and adherence evaluation at 12 months. Study design is unique in randomized design for CPC evaluation.[2] The study was supported by Charles University (Project SVV 260 551).

References

1. CHEN, K.Y., BRUNK, K.M., *et al.*: Pharmacy, Basel, 8, 2, 52, 2020.

2. ZERBIT, J., CHEVRET, S., *et al.*: Annals of Hematology. 99, 7, 2020, 1615–1625.

CSP8

DRUG-DISEASE INTERACTIONS (DDI) IN THE CZECH SAMPLE OF THE EUROAGEISM H2020 PROJECT

KUMMER, I.[1], LUKAČIŠINOVÁ, A.[1], REISSIGOVÁ, J.[2], BRKIĆ, J.[1], FIALOVÁ, D.[1]

[1]Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Statistical Modeling, Institute of Computer Science of the Czech Academy of Sciences, Czech Republic

e-mail: ingrid.kummer2@gmail.com

Older patients are prescribed multiple medications which can result in drug-disease interactions (DDIs), e.g. exacerbation of chronic conditions they suffer from. The aim of this study was to investigate the prevalence and risk factors of cardiovascular (CVS) DDIs in older adults in the Czech sample of the EuroAgeism project, in ambulatory and acute care facilities. The abstract presents preliminary results from 1152 patients aged 65+ collected using the EUROAGEISM H2020 protocols in acute and ambulatory care facilities between Jun2019 – Jan2020 in the Czech Republic. For the purposes of this analysis, only the population with at least 1 CVS diagnose was used, which represents 91% of the total population. Explicit criteria STOPP/START version 2 were used to identify CVS DDIs. Most participants were females (66%), 40.9% pertained in the age group of 85+, and 38% were prescribed hyperpolypharmacy (10+ meds). Prevalence of 1+ CVS DDI was identified in 705 (67%) patients using START and in 525 (58%) STOPP criteria. Higher odds of being prescribed at least 1 CVS DDI in the group of patients with 1+ CVS DDI using START criteria were in 85+ years old patients (OR=1.6; 95%CI 1.1-2.4, p=0.026), using STOPP criteria 1+ CVS DDI were mostly detected in 85+ years old patients (OR=2.2; 95%CI 1.5-3.4, p<0.001) and patients prescribed 10+ meds (OR=2.9; 95% CI 2.1-4.0, p<0.001). Our study showed a high prevalence of CVS DDIs, especially in the oldest old patients that are in a higher risk of negative outcomes resulting from clinically relevant DDIs. Clinical pharmacist medication reviews should be provided to support safer prescribing in geriatric patients.

The study was supported by projects: EuroAgeism Horizon 2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Progress Q42- Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and ICARE4OLD H2020 -965341.

CSP9

MEDICATION ERRORS DURING ADMINISTRATION OF DRUGS IN HEATH CARE FACILITIES IN THE CZECH REPUBLIC

TESAR, O.,[1] DOSEDEL, M.,[1,2] MALA-LADOVA, K.,[1] VLCEK, J., [1] MALY, J., [1,3]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Nursing department, Internal ward, Hospital Šumperk, Czech Republic

3 Department of clinical pharmacy, hospital pharmacy, University hospital Motol, Prague, Czech Republic

e-mail: tesao7aa@faf.cuni.cz

Medication errors are a significant issue affecting the healthcare system all around the world with enormous costs.[1] The aim of this work was to analyze medication errors from the perspective of nurse medication administration at the department of internal medicine, surgery, and follow-up care in four Czech hospitals. This is a long-term observational intervention study focused on medication administration safety. The direct observation method was used for data collection, which was performed by a trained team consisting of a nurse and a pharmacist.

Collected data: demographic data (patient, nurse); patient's pharmacotherapy; patient's identity check method; hygiene; double checks of drugs; whether the right drug was administered to the right patient at the right time, at the right dose; omission and unordered drug errors; generic substitution; intervals between drug and food/drink; nurse disruption; deterioration and drug handling; steps of parenteral drug administration; storage and labeling of drugs.

Data was recorded into a web database and was anonymized. The first observation phase was carried out from June to August 2021.

During the study, 6,535 medication administration was observed to 332 patients by 58 nurses. The mean number of drugs per patient was 6.22 ± 3.73.

The study was supported by Charles University SVV project (SVV 260 551) and Ministry of Health of Czech Republic (grant nr. NU20-09-00257).

References

1. SULAIMAN, Z.H., SALIM, A.H., NATHIR, M.O., *et al*: Jordan Journal of Pharmaceutical Sciences, 10(2), 2017, 87-101.

CSP10

PREVALENCE AND RISK FACTORS OF POTENTIALLY INAPPROPRIATE MEDICATION USE IN COMMUNITY-RESIDING OLDER ADULTS: PRELIMINARY RESULTS FROM THE EUROAGEISM H2020 PROJECT

BRKIĆ, J., [1] REISSIGOVÁ, J., [2] FIALOVÁ, D.,[1,3] AND ESR 7 EUROAGEISM H2020 RESEARCH TEAM FROM 8 PARTICIPATING COUNTRIES

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Statistical Modelling, Institute of Computer Science, Czech Academy of Sciences, Czech Republic

[3] Department of Geriatrics and Gerontology, 1st Faculty of Medicine, Charles University, Czech Republic

e-mail: jovanabrkic37@gmail.com

The use of potentially inappropriate medications (PIMs) in older adults is a growing public health concern around the globe[1,2,3]. This study was set out to assess the prevalence and risk factors of PIM use in community-dwelling older adults in several European countries. A cross-sectional multicentric study was conducted in 8 countries, but we present preliminary results from 5 countries: Croatia, the Czech Republic, Serbia, Spain and Turkey. Data were collected using a structured protocol based on comprehensive geriatric assessment containing more than 300 socio-demographic and clinical characteristics. We assessed the prevalence of PIM using both EU(7)-PIM list[4] and American Geriatrics Society 2019 Beers Criteria[5]. We determined the factors associated with PIM use by stepwise multiple logistic regression. We included 2011 participants, most of whom were women, 59.1 %. The total prevalence of PIM use was 61.4 %, ranging from 37.1 % in the Czech Republic to 74.4 % in Croatia. The factors significantly associated with PIM use ($p<0.05$) were: being female 1.30 (1.05-1.61); polypharmacy (5+ medications) 6.12 (4.94-7.58); being diagnosed with depression 2.37 (1.56-3.61), and residing in the Czech Republic 0.30 (0.21-0.41) and Turkey 0.45 (0.33-0.63) (reference country: Croatia). These preliminary findings confirm that PIM use in community-dwelling older adults is highly prevalent, and interventions to reduce it should primarily focus on risky cohorts of older adults, such as females, patients using polypharmacy and suffering from depression.

The study was supported by projects: EuroAgeism Horizon 2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Progress Q42-Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and ICARE4OLD H2020 -965341

References

1. MORIN, L., LAROCHE, M., TEXIER, G., *et al.*: J. Am. Med. Dir. Assoc., 17, 2016, 862.E1–862.E9.
2. TOMMELEIN, E., MEHUYS, E., PETROVIĆ, M., *et al.*: Eur. J. Clin. Pharmacol., 71, 2015, 1415–1427.
3. FIALOVÁ, D., TOPINKOVÁ, E., GAMBASSI, G., *et al.*: Jama, 293, 2005, 1348–1358.

4. 2019 AMERICAN GERIATRICS SOCIETY BEERS CRITERIA® UPDATE EXPERT PANEL: J. Am. Geriatr. Soc., 67, 2019, 674–94.
5. RENOM-GUITERAS, A., MEYER, G., THÜRMANN, P.A.: Eur. J. Clin. Pharmacol., 71, 2015, 861–75.

CSP11

PHARMACY STUDENTS KNOWLEDGE ABOUT AGING AND RATIONAL GERIATRIC PHARMACOTHERAPY IN INDIA: A CROSS-SECTIONAL STUDY

AREMAN, B.S.,[1] BHAGAVATHULA, A.S.,[1] BANDARI, D.K.,[1] FIALOVA, D[1,2]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2] Department of Geriatrics and Gerontology, 1st Faculty of Medicine, Charles University, Czech Republic

e-mail: bhagyasriaremen@gmail.com

Adequate knowledge on ageing and geriatric pharmacotherary are rare among graduate and postgradute pharmacists because of insufficient education and training in this area. We conducted our study to compare the knowledge on aging and rational geriatric pharmacotherapy among Bachelor of Pharmacy (BPharm) and Doctor of Pharmacy (PharmD) students in Telangana state, India. A multi-school, cross-sectional study was conducted among final year BPharm and PharmD students from 136 institutions between February and June 2017. A 15-item Geriatric Knowledge Assessment Scale (GKAS) was used to assess aging and rational geriatric pharmacotherapy knowledge among 600 pharmacy students. A total of 530 students participated in the survey (88.3%), and their mean age was 23.5 (0.5 standard deviation) years. 73% of the participants were PharmD and 27% BPharm students. Adequate knowledge about aging was identified in only 41.1% of PharmD students and 16.1% of BPharm students. Both PharmD (73.1%) and BPharm (86.7%) demonstrated poor rational geriatric pharmacotherapy knowledge. Male gender [Adjusted Odds Ratio (AOR): 2.9, 95% CI (1.46–5.71)], students aged <22 years [AOR: 3.5, (2.08-6.03)] and studying PharmD degree [AOR: 3.3, (1.87-5.78)] were significantly associated with higher knowledge on aging and geriatric pharmacotherapy. Overall inadequate knowledge in geriatric area among graduated pharmacy students may be due to a lack of geriatric content in the pharmacy curriculum and insufficient training in this area.

The study was supported by projects: EuroAgeism Horizon 2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Progress Q42- Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and ICARE4OLD H2020 -965341.

References

1. RAMBHADE, S., CHAKARBORTY, A., SHRIVASTAVA, A., et al (2012). A survey on polypharmacy and use of inappropriate medications. Toxicology International, 19(1), 68–73.
2. DACEY, M., MCCLOSKEY, W. W., ZEIND, C., et al (2014). Development of a questionnaire to assess health profession students' knowledge of older adults. Currents in Pharmacy Teaching and Learning, 6(2), 233–244.
3. O'MAHONY, D., O'SULLIVAN, D., BYRNE, S., et al (2015). STOPP/ START criteria for potentially inappropriate prescribing in older people: Version 2. Age and Ageing, 44(2), 213–218.

4. SADOWSKI, C. A., CHARROIS, T. L., SEHN, E., et al (2020). The role and impact of the pharmacist in long-term care settings: A systematic review. Journal of the American Pharmacists Association: JAPhA, 60(3), 516–524.e2.
5. SPINEWINE, A., FIALOVÁ, D., & BYRNE, S. (2012). The role of the pharmacist in optimizing pharmacotherapy in older people. Drugs Aging, 29, 495–510.

CSP12

PREVALENCE AND DETERMINANTS OF MULTIMORBIDITY, POLYPHARMACY, AND POTENTIALLY INAPPROPRIATE MEDICATION USE IN THE OLDER OUTPATIENTS: FINDINGS FROM EUROAGEISM H2020 ESR7 PROJECT IN ETHIOPIA

BHAGAVATHULA, A.S.,[1] SEID, M.A.,[2] ADAN, A.,[3] GABREYOHANNES, E.A.,[4] FIALOVA, D.,[1,5]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Hradec Králové, Czech Republic

[2] Department of Clinical Pharmacy, School of Pharmacy, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia

[3] Department of Internal medicine, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia

[4] Division of Pharmacy, School of Allied Health, University of Western Australia

[5] Department of Geriatrics and Gerontology, 1st Faculty of Medicine, Charles University, Prague, Czech Republic

e-mail: bhagavaa@faf.cuni.cz

Few studies assessed the prevalence of multimorbidity (≥2 chronic diseases) and rational geriatric prescribing in Africa. This study aimed to examine the prevalence and determinants of multimorbidity, polypharmacy (≥5 long-term medications), and potentially inappropriate medication (PIM) use according to the 2019 Beers criteria among the older adults attending chronic care clinics in Ethiopia. A cross-sectional study was conducted among 320 randomly selected older adults from March 12, 2020 to August 30, 2020. A comprehensive geriatric assessment was performed to explore the complex factors related to multimorbidity, polypharmacy, and PIM use. A multivariable logistic regression analysis was performed to identify the predictor variables. Overall, the mean age of the study population was 71.9 ± 6.0 years, and the average number of medications per patient was 3.4 ± 1.7. The prevalence of multimorbidity, polypharmacy, and PIM exposure was 59.1%, 24.1%, and 47.2%, respectively. Drugs to avoid such as insulin sliding scale (8.8%) and amitriptyline (7.8%) were frequently used in older adults, and use of diuretics without monitoring (10%), and higher doses of aspirin (>325 mg) (6.9%) at the age of ≥70 years were also frequently found.. Older patients experiencing pain flare-ups were more likely to suffer from multimorbidity (adjusted odds ratio (AOR): 1.64, 95% confidence intervals: 1.13–2.39). Persistent anger (AOR: 3.33; 1.71–6.47) and use of mobility aids (AOR: 2.41,1.35–4.28) were associated with polypharmacy. Moreover, cognitive impairment (AOR: 1.65,1.15–2.34) and health deterioration (AOR: 1.61, 1.11–2.32) increased likelihood of PIM exposure. High prevalence of multimorbidity and PIM use was observed in Ethiopian older patients attending chronic care clinics. Rational geriatric pharmacotherapy might be significantly improvedincreased by wise implementation ofPIM criteria in routine clinical practice.

The study was supported by EuroAgeism H2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Progress Q42- Faculty of Pharmacy, Charles University, START/MED/093CZ.02.2.69/0.0/0.0/19_073/0016935, SVV 260551 and ICARE4OLD H2020 -965341.

CSP13

PREVALENCE OF POLYPHARMACY, HYPERPOLYPHARMACY AND POTENTIALLY INAPPROPRIATE MEDICATION USE IN OLDER ADULTS IN INDIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

BANDARI, D.K.,[1] BHAGAVATHULA, A.S.,[1] VIDYASAGAR, K.,[2] CHHABRA, M.,[3] RASHID, M.,[4] SHARMA, R.,[3] AREMAN, B.S.,[1] FIALOVA, D.[1,5]

[1] Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové, Charles University, Czech Republic

[2]University College of Pharmaceutical Sciences, Kakatiya University, Warangal, India

[3]Indo-Soviet Friendship College of Pharmacy, Moga, India

[4]Department of Pharmacy Practice, Sri Adichunchanagiri College of Pharmacy, Mandya, India

[5]Department of Geriatrics and Gerontology, 1st Faculty of Medicine, Charles University, Czech Republic

e-mail: laxmideepak.pharma@gmail.com

Older people often receive multiple drugs i.e., polypharmacy (concomitant use of 5–9 medicines) and hyperpolypharmacy (concomitant use of ≥10 medicines) for chronic diseases. A limited number of studies have been performed to evaluate the prevalence of polypharmacy, hyperpolypharmacy, and potentially inappropriate medication (PIM) use in older people of developing countries. The present study aimed to investigate regional variations in the prevalence of polypharmacy, hyperpolypharmacy, and PIM use in older people (60 + years) in India. Studies were identified using Medline/PubMed, Scopus, and Google Scholar databases published from inception (2002) to September 31, 2020. Out of the total 1890 articles, 27 were included in the study. Overall, the pooled prevalence of polypharmacy was 49% (95% confidence interval: 42–56; $p < 0.01$), hyperpolypharmacy was 31% (21–40; $p < 0.01$), and PIM use was 28% (24–32; $p < 0.01$) among older Indian adults. Polypharmacy was more prevalent in North-east India (65%, 50–79), whereas hyperpolypharmacy was prevalent in south India (33%, 17–48). Region-wize estimates for the pooled prevalence of PIM use in India were as follows: 23% (21–25) in East, 33% in West (24–42), 17.8% in North (11–23), and 32% (26–38) in South India. The prevalence of PIM use in adults aged ≥70 years was 35% (28–42), in those taking more medications (≥5.5/day) was 27% (22–31), and in adults using a high number of PIMs (≥3) was 29% (22–36). Subgroup analysis showed that crosssectional studies had a higher pooled prevalence of polypharmacy 55% (44–65) than cohorts 45% (37–54). Hyperpolypharmacy in inpatient care settings was 37% (26–47), whereas PIM use was higher in private hospitals 31% (24–38) than government hospitals 25% (19–31). Polypharmacy and hyperpolypharmacy are widely prevalent in India. About 28% of older Indian adults are exposed by PIM use. Thus, appropriate steps are needed to promote rational geriatric prescribing in India.

The study was supported by projects: EuroAgeism Horizon 2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Progress Q42- Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and ICARE4OLD H2020 -965341.

.

References

1. CHANDRASEKHAR, D., SAMJAS, M., AND PATTANI, D. Evaluation of Potentially Inappropriate Medications Among Hospitalized Geriatric Patients in Tertiary Care Referral Hospital Using STOPP/START Criteria. Clin. Epidemiol. Glob. Health 7 (3), 268–273.
2. DE OLIVEIRA, L. M., DIEL, J. D. A. C., et al. Prevalence of Drug Interactions in Hospitalised Elderly Patients: a Systematic Review. Eur. J. Hosp. Pharm. 28, 4–9.
3. KAUFMANN, C. P., TREMP, R., HERSBERGER, K. E., et al. Inappropriate Prescribing: a Systematic Overview of Published Assessment Tools. Eur. J. Clin. Pharmacol. 70, 1–11. doi:10.1007/s00228-013-1575-8
4. LIEW, T. M., LEE, C. S., GOH SHAWN, et al. Potentially Inappropriate Prescribing Among Older Persons: a Meta-Analysis of Observational Studies. Ann. Fam. Med. 17 (3), 257–266.
5. TOPINKOVÁ, E., MÁDLOVÁ, P., FIALOVÁ, D., et al. New Evidence-Based Criteria for Evaluating the Appropriateness of Drug Regimen in Seniors. Criteria STOPP (Screening Tool of Older Person's Prescriptions) and START (Screening Tool to Alert Doctors to Right Treatment). Vnitr Lek 54, 1161–1169.