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Abstracts

Section 3 - Clinical and Social Pharmacy

POTENTIALLY INAPPROPRIATE MEDICATION USE AMONG OLDER NURSING HOME RESIDENTS FROM CROATIA

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Nursing home (NH) residents are more likely to experience the negative outcomes of potentially inappropriate medication (PIM) use due to the high occurrence of polymorbidity, disability, and frailty.[1,2] Therefore, the aim of our study, conducted within the START project in which 4 European countries (Czechia, Croatia, Slovakia, and Bulgaria) were included, was to determine the prevalence of PIM use in NH residents only from Croatia, where the data collection was firstly completed. We conducted a cross-sectional study in the period August-December 2022 in three regions of Croatia: the City of Zagreb, Slavonia, and Dalmatia. NH residents aged 65 years and older were assessed using the interRAI Long-Term Care Facilities (LTCF) Assessment tool. To determine the prevalence of PIM use, we applied the EU(7)-PIM list.[3] The R-software version 4.1.1. was used for data analysis. The study included 226 NH residents with a mean age of 82.5, most of whom were women, 76.5%. The total prevalence of PIM use was 89.8%, and it did not differ significantly across Croatian regions (85.3% in Slavonia, 90.7% in the City of Zagreb, and 94.7% in Dalmatia, p=0.248). We detected a total of 546 PIMs. The most prevalent PIMs were benzodiazepines, 26.9% of overall PIMs, followed by proton pump inhibitors, 17.9%. The results of our study show that PIM use is highly prevalent in all regions of Croatia; thus, it is necessary to develop and implement policies and practices to reduce the unnecessary use of PIMs, especially with a focus on the most commonly prescribed PIMs, namely benzodiazepines, and proton pump inhibitors.

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PREVALENCE OF ANTIDEPRESSANT TREATMENT AND PSYCHOLOGICAL THERAPY IN HOME CARE CLIENTS: RESULTS FROM I-BENC PROJECT

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More than 35% of older adults suffer from depression (1), which indicates a global health problem. This pilot study aimed to identify the prevalence and determinants of no use of antidepressants (AD) or psychotherapy (PTH) in depressive older home care clients 65+ (HCCs) in six European countries (Belgium (BE), Finland (FI), Germany (GE), Iceland (IS), Italy (IT) and the Netherlands (NL)), participating in the EU I-BENC project (2014-2016, total n= 2871). R-software vers 4.3.2 was used to analyze the interRAI Home Care (HC) baseline data. We analyzed HCCs having recorded depression among diagnoses or having a Depression Rating Scale (DRS) score$\geq$3 and use of AD (N06A) and attendance in PTH (at least once weekly). Most participants were females (66.9%), 44.8% were of age 85+ yrs, and 28.1% were diagnosed with depression or had DRS$\geq$3. 15.3% used AD, 0.6% attended PTH, and 0.2% used both therapies. Odds of not having any treatment (AD/PTH) were higher in IT (OR=15.4, 95% CI 6.2-38.1, $p<0.001$), in HHCs suffering from pain (OR=2.8; 95% CI 1.3-6.2) or having >2 chronic diagnoses (OR=2.4; 95% CI 1.4-4.1). Women and HCCs taking more medications (5-9 drugs or 10+) and being more dependent in instrumental activities of daily living (IADLP 30+) had significantly higher odds of using AD or PTH. Our findings emphasize the need for better treatment of depression in HC older adults and higher provision of PTH that is free of pharmacological side effects.

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TRENDS IN THE PREVALENCE OF USE OF ANTIDEPRESSANTS AND ANTIANXIETY AGENTS IN DEPRESSIVE OLDER PATIENTS IN LONG-TERM CARE

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Background: Antidepressants have emerged as the most common pharmacological intervention for managing chronic depression and anxiety and are often prescribed in older patients suffering from multiple comorbidities[1]. **Aim:** This study aimed to investigate the trends in the prevalence of use of antidepressants and antianxiety agents among older nursing home (NH) residents (65+) suffering from depression in nursing homes (NHs) in Canada (CAN) and the Netherland (NL). **Methods:** A pilot retrospective analysis was conducted utilizing data from Dutch Comprehensive Academic Search (CAS) and Canadian Institute for Health Information (CIHI) databases embedding interRAI-LTCF data analyzed in I-CARE4OLD H2020 project. Trends in the use of antidepressants and antianxiety agents (2014-2018) were analyzed using R–and SAS software. **Results:** Analyzed populations of NH residents between years 2014-2018 increased from 150955 to 158209 in CAN and from 703 to 1332 in NL. Prevalence of diagnosed depression decreased from 28.4% to 27.8% and from 17% to 15.2% in CAN and NL, respectively. The occurrence of anxiety was about the same in both countries (fluctuating in the range between 9.4% and 11.9% in CAN and between 8.9% and 10.4% in NL). Prevalence of antidepressants use increased from 47.7% to 49.3% in CAN and from 22.8% to 25.7% (in 2017) in NL, and the use of antianxiety agents increased from 9.4% to 11.9% in CAN, in NL this data was not recorded. **Conclusion:** The observed trends showed twice as high prevalence of depression and antidepressants use in NHs in CAN compared to NL. The difference in care practices, staff ratio and services in NH facilities must be further explored to explain these results.

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THE TRENDS IN PREVALENCE OF DEPRESSION, PSYCHOLOGICAL THERAPY AND MINOR SOCIAL ACTIVITIES IN NURSING HOME RESIDENTS

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Background: The prevalence of depression among older persons is reported around 30% and high use of pharmacological strategies necessitates also sufficient emphasis on non-pharmacological interventions beyond traditional approaches[1,2]. **Aim:** The primary objective of this study was to assess the trends in the prevalence of psychosocial interventions among nursing home residents in Canada (CAN) and the Netherlands (NL). **Methodology:** A study on trends in the use of psychosocial interventions (2014-2018) was conducted in persons aged 65 years and above residing in nursing home facilities in CAN and NL. The diagnosis of depression was retrieved from healthcare records or identified by using Depression Rating Scale (DRS) with a score 3+ that refers to clinically relevant depression. The study was performed using national interRAI-LTCF data obtained in the I-CARE4OLD project from Dutch Comprehensive Academic Search (CAS) database in NL and Canadian Institute for Health Information (CIHI) in CAN. Analyzed psychosocial interventions included psychological therapy and minor social activities (e.g.: taking trips etc.). Prevalence was calculated separately among unique individuals in each calendar year (denominator: total population) and analyzed by using R and SAS software. **Results:** Annual prevalence of depression or depressive symptoms ranged between 42.8% and 45.7% in CAN (n=150955 to 158209) and from 42.4% to 48.1% in NL (n=620 to 1332). Use of psychological therapy was very low, ranging from 2.0% to 2.9% in CAN and 1.3% to 2.9% in NL. In contrast, the prevalence of minor social activities was high in both countries (1+social activity), with CAN reporting rates between 94.5% and 94.8%, and NL between 96.4% and 99.0%. **Conclusion:** Our data revealed low prevalence of provision of scheduled psychotherapy in nursing homes in CAN and NL and frequently used minor social activities. Thus, further study is needed to clarify the reasons beyond low use of psychosocial interventions in nursing home settings.

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MEDICATION ADMINISTRATION ERRORS IN CZECH HOSPITALS

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The medication administration error (MAE) rate is still high (about 8-10%),[1,2] and this burden is needed to be reduced.[3] Thus, accessible interventions are needed. This study aims for analyzing the effectiveness of simple educational-based interventions for reducing MAE rates including best practice adherence. A prospective, non-randomized, multicentric, observational, before-after, 3-phase study design was used. Data were collected for three consecutive days at surgical, internal and follow-up departments of each of four hospitals by a multidisciplinary team consisted of a nurse and pharmacist using a direct observational method. Educational interventions consisted of seminars, manuals, and guidelines modification. A total of 17,665 medication administrations, 1,180 major MAEs, 3,807 specific MAEs and 29962 procedural MAEs were observed during the study. In the last phase there was observed a significant reduction (ceteris paribus) in major MAE rate (odds ratio (OR) 0.68; p-value 1.06×10^{-6}), specific MAE rate (OR 0.84; p-value 1.61×10^{-4}), and procedural MAE rate (OR 0.66; p-value 2.10×10^{-17}). If nurse associated factors were included in the analysis, however, only 5 of 30 MAEs (all procedural) has been improved significantly in the last phase. Despite the interventions were effective partially only, increased awareness and readiness for further improvement were observed. Continuous education, systemic measures improvement, as well as electronic support systems are needed to build better culture of safety in the future.

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POTENTIAL USE OF LABORATORY MONITORING OF DIRECT ORAL ANTICOAGULANTS IN SARCOPENIC PATIENTS

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Sarcopenia, the age-related loss of skeletal muscle, has the potential to alter the distribution of direct oral anticoagulants (DOACs) leading to elevated plasma levels and inter-individual variability and potentially compromising the safety of this treatment. Furthermore, studies have identified substantial intra-individual variability in DOACs levels.[1]

This project aims to evaluate the impact of sarcopenia on the DOACs drug levels in patients aged ≥ 65 years with a particular focus on the potential utility of laboratory monitoring of DOACs within this specific patient population in a clinical setting. In addition, the study will investigate the extent of intraindividual variability in DOACs levels over time.

The prospective observational study will include outpatients aged 65 years and above taking apixaban, rivaroxaban or dabigatran for atrial fibrillation or deep vein thrombosis treatment. Sarcopenia will be evaluated through the determination of hand grip strength using a dynamometer and the assessment of muscle mass using a bioimpedance analysis. DOAC levels will be assessed by calibrated anti-Xa (for apixaban and rivaroxaban) or diluted thrombin time (for dabigatran) with monitoring of both trough and peak concentrations. After approximately 6 months, patients will undergo a follow-up assessment.

Should our hypothesis be confirmed, the outcomes of this study may significantly contribute to the optimization of DOACs therapy in elderly patients.

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THE USE OF INTERNATIONAL CLASSIFICATION OF DISEASES CODES TO DETECT HOSPITAL ADMISSIONS ASSOCIATED WITH ADVERSE DRUG EVENTS

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The detection of medication-related hospital admissions by spontaneous reporting or narrow medication-related International Classification of Diseases (ICD) code sets (containing the words drug-induced or due to drugs) underestimates the prevalence of medication-related hospital admissions. Broadening the set of medication-related ICD codes with diagnoses very likely, likely and possibly related to adverse drug events (ADEs) might increase the capacity to detect medication-related hospital admissions.

Our aim was to examine the agreement between medication-related ICD-10 codes and clinically adjudicated medication-related admissions by calculating the sensitivity and specificity of different ICD-10 code sets synthesized by a systematic review.[1] The systematic review synthesized a comprehensive set of ICD 10 codes that have been used to identify ADEs and categorized them by their ADE-likelihood according to Stausberg & Hasford.[2] The narrow code set included higher likelihood codes, while the broad code set included lower likelihood codes (very likely, likely, possibly ADE-related) as well.

This study analyzed two datasets of clinically adjudicated admissions – one from the Netherlands[3] and one from the Czech Republic.[4] Sensitivities and specificities were calculated for the narrow code set of ICD codes and the broad code set of ICD 10 codes.

The Dutch sample included 1102 ICD-coded readmissions (134 ADEs), while the Czech sample included 1228 adult ICD-coded admissions (146 ADEs). The sensitivities of the narrow set of ICD codes were 4.5% (Dutch sample) and 4.1% (Czech sample), while the specificity was 99.6 % (in both samples). The sensitivities of the broad set of ICD codes were 28% (Dutch sample) and 35% (Czech sample), while the specificity was 92% (in both samples). The most frequent true positive ADE-related ICD diagnoses were Agranulocytosis (Dutch sample) and Gastrointestinal hemorrhage, unspecified (Czech sample).

Broadening the set of ICD codes led to 6 to 8 times higher sensitivity in detecting ADE-related hospital admissions without a huge drop in the specificity. Information on specificity and sensitivity could offer valuable insight into the codes' applications (direct reporting to national pharmacovigilance centers or the need for a confirmatory medical record review).

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VALIDATION OF THE FIVE STEPS ASSESSMENT, A TOOL FOR ASSESSING ADHERENCE TO INHALATION TECHNIQUE

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The adherence to inhalation therapy in respiratory diseases is insufficient[1]. Since there has been no validated universal tool for assessing adherence to inhalation technique applicable to all inhalation systems currently available on the market facilitating the comparison of the results of individual studies, the study by Vytrisalova M et al. introduced unique and universal tool for assessing adherence to inhaled therapy in five well-defined steps – Five Steps Assessment. This simple tool has been validated on a small sample of non-mild chronic obstructive pulmonary disease (COPD) patients[2] and its more robust validation in patients with bronchial asthma (BA)/COPD is now being completed for the next intervention phase of the trial. The estimated number of evaluated inhalations is set at 200. Patients are recorded during the manipulation of the inhaler(s), which allows repeated assessment by six evaluators and determination of intra- and inter-individual variability. The Fleiss' Kappa calculation will be used to assess the validity. Sociodemographic and clinical characteristics of patients will be obtained from medical records and structured interview.

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USE OF THE ELECTRONIC MONITORING OF MEDICATION ADHERENCE TO DIRECT ORAL ANTICOAGULANTS: A SYSTEMATIC REVIEW

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Our aim was to proceed a systematical review on the topic of electronic monitoring (EM) of medication adherence (MA) in outpatients taking direct oral anticoagulants (DOACs). All sources published *before March 23rd, 2022, and before September 1st, 2023, indexed in databases Cochrane Library, EMBASE*, MEDLINE, Scopus and Web of Science, were retrieved. The search query targeted topics of MA, DOACs and EM. Eligible studies were original articles about primary research themed on EM of MA to DOACs, regardless of the patient diagnosis. Standard procedure for conducting systematic review was applied, three evaluators were involved. The reflection of EMERGE guidelines[1] (tool for reporting MA outcomes) was rated. Review was registered in PROSPERO database (ID CRD42023441161). Out of the 3 104 records, 19 were considered eligible (10 observational, 9 interventional studies). The studies conducted in 9 countries enrolled patients (range 8–1162), mostly men (47–70%) in the age of 47–87 years, participating for the period of one month to one year. Five diagnoses (most frequently atrial fibrillation in 15 studies) for taking DOACs (most commonly apixaban 14, rivaroxaban 14) were reported. EM was tracked with containers or caps (10), buttons (5), blisters or blister sleeves (5), and mobile applications (4). The primary outcome was mostly considered to be EM of MA to DOACs (16). In 15 studies value of MA was higher than 80%. Studies are very heterogeneous; therefore a deeper comparison is difficult to perform.

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