

## ABSTRACT

**Introduction:** In the past decades, the representation of seniors is increasing and the knowledge and the approaches to geriatrics and gerontology are more and more important. With the increasing age, there is also a grow in number of diseases and drugs (high incidence of polymorbidity and polypharmacotherapy). With regard to physiological, pathological and other changes related to aging, there is a higher risk of complications after drugs. For the rational use of drugs with old people, it is essential to eliminate negative influence and negative impacts of various drugs or non-drugs factors and to ensure the maximum effectiveness, safety and cost-effectiveness of given drugs regimens. Especially using anticholinergic drugs can have negative effect on older people (e.g confusion) while aging, “the cholinergic deficit” is increasing. As the anticholinergic drugs is necessary for seniors, it is required to use drugs with the lowest anticholinergic activity. This diploma thesis evaluates the prevalence of anticholinergic drugs usage. It also elaborates which anticholinergic drugs and combinations of these anticholinergic drugs are most commonly prescribed to geriatric patients in acute, ambulatory and pharmacy healthcare in the Czech Republic.

**Methodology:** The analyzed data were collected from 2018 to 2020 within the ESR7, EUROAGEISM H2020 (2017-2021) project. In the study placed in the Czech Republic, there were included 1602 seniors (65 years plus) total. They were consisted of 589 patients from acute care (involved in geriatric clinics in Brno, Hradec Králové, Opava and in Prague), 563 patients from ambulatory geriatric care (involved in the same cities) and 450 patients involved in pharmacy care (in Holešov, Hradec Králové and in Kroměříž). Prospective data were collected by researchers. They used certified questionnaire which provided complex geriatric evaluation (CGA- Comprehensive Geriatric Assessment). This research contained more than 300 geriatric characteristics, including socio-demographic data, clinical and functional state of the seniors, laboratory examination, subjective and objective evaluation of their health condition and geriatric fragility, use of health services and information concerning complex data about implemented medication. The data from acute and ambulatory care were obtained by an interview with the patients and they were more specified with the help of medical documentation and an interview with medical personnel. In the pharmacy care, the information was gathered exclusively by a structured interview with the patient.

**Results:** Geriatric patients in the Czech Republic, who involved in the study, most often suffered with 5 - 9 chronic diseases (N = 789, 49,5 %) and the highest percentage of patients took 5 - 9 drugs (N = 691, 43,1 %). One-third of geriatric patients who involved in the study had problems with incontinence. Another finding was that up to one-third of men were treated for benign prostatic hyperplasia. Seniors took the highest amount of drugs in acute care of 5 - 9, 10 and more (N = 271, 46,0 % resp. N = 276, 46,9 %), in ambulatory care they used about 5 - 9 (N = 308, 54,7 %), in pharmacy care they used about 2 - 4 drugs (N = 215, 47,8 %). From the analysis of our studied file, it is clear that the most geriatric patients (N = 479, 29,9 %) used one anticholinergic drugs. In the monitored files, the most commonly used anticholinergic drugs and their combinations were: furosemid (1) and furosemid in combination with warfarin (2) in acute care (1/ N = 247, 41,9 %, 2/ N = 8, 1,3 %) and ambulatory care (1/ N = 141, 25,0 %, 2/ N = 12, 2,1 %), metformin (3) and metformin in combination with warfarin (4) in pharmacy care (3/ N = 72, 16,0 %, 4/ N = 5, 1,1 %). Following the evaluation of overall anticholinergic activity of drugs regimens, from total 1050 of geriatric patients, most of them (N = 436, 41,5 %) took a combination of anticholinergic drugs with the overall activity 0,50 to 1,49 (with the low anticholinergic activity).

**Conclusion:** Based on the research, we obtained comprehensible information about the usage of individual anticholinergic drugs and about their combinations for czech geriatric patients in acute, ambulatory and pharmacy care. Additionally, along with the data analysis, we acquired information about polypharmacotherapy as well as about the amount of anticholinergic drugs used simultaneously. Moreover, we obtained information about overall anticholinergic activity of anticholinergic drugs used by geriatric patients in the Czech Republic. Generally, there were prescribed anticholinergic drugs and anticholinergic drugs regimens with low anticholinergic activity. Anticholinergic drugs regimens with high activity were used rarely. The anticholinergic activity of pharmaceutical methods needs to be constantly monitored. If there are any unwanted side effects, they need to be determined early and they need to be dealt with properly. This especially applies to elderly people since it can have serious impact on morbidity and the quality life of senior.

**Key words:** anticholinergic drugs, seniors, rationality of drug prescribing, anticholinergic potential

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