ABSTRACT

Introduction: Older persons represent a quickly growing segment of the population worldwide and more vulnerable population to various adverse drug reactions and adverse outcomes. Many explicit criteria of potentially inappropriate medications (PIMs) have been developed in different countries in order to improve the quality and safety of geriatric prescribing and to reduce the risk of drugs in older adults.

The aim of this diploma thesis was to summarize (using narrative literature review) the negative outcomes of potentially inappropriate medications documented in pharmacoepidemological studies published by 2016 year. The outputs of diploma thesis create a part of the effort of the research subgroup “Aging and Changes in the Therapeutic Value of Medications in the Aged” and EU COST Action initiative IS1402 (2015-2018).

Methods: The literature review using PubMed and Web of Science datasets during the period 10/2015 - 1/2017 was conducted. 421 studies were identified during the primary literature search and after thorough consideration of abstracts 67 (16%) of studies were selected for works on summary tables (354 of studies were excluded because in these studies only prevalence of PIMs, no negative outcomes were documented, or PIMs were defined based on implicit criteria or full text of articles were not available). In the literature review only outcomes studies published during the period 2003 - 2016 were included. Content of summary tables are focused on pharmacoepidemiological design of studies, negative outcomes associated with PIM use and study limitations.

Results: 35 (52%) of prospective, 21 (31%) of retrospective and 11 (17%) of cross-sectional studies were identified. The majority of studies included patients aged ≥ 65 years living in the community, nursing homes or hospitalized patients. 55 (82%) of studies analyzed representative samples of population > 300 patients. The most of studies found positive association with hospitalization, impairment in physical functioning, occurrence of ADEs/ADRs, higher health care cost, higher utilization of health care and non-adherence. No negative impact on mortality, HRQOL and occurrence of drug-drug interactions was observed.
**Conclusion**: Negative outcomes significantly associated with PIM use in published studies were mainly hospitalizations, impairment in physical functioning, occurrence of ADEs/ADRs, non-adherence, higher health care costs and higher health care utilization. No negative impact on mortality, HRQOL and occurrence drug-drug interactions has been confirmed by the majority of studies. Further outcome studies using improved methodology (particularly higher number of older people, longer study period, adjustment of results for more confounders, careful selection of comparative groups, etc.) are needed to better understand relevant outcomes of PIM use in older patients in Europe.

**Key words**: potentially inappropriate prescribing, inappropriate medication, explicite criteria, negative outcomes, hospitalization, mortality, non-adherence, costs, seniors, geriatric patients

**Support**: The study was conducted under the EU COST Action IS 1402 initiative “Ageism - a multi-national, interdisciplinary perspective”, working subgroup WG1b “Healthy clinical strategies for healthy ageing” and also with the support of SVV program 260 295 and the scientific program PROGRESS Q24 at the Department of Social and Clinical Pharmacy, Faculty of Pharmacy in Hradec Králové (scientific subgroup Aging and Changes in the Therapeutic Value of Medications in the Aged, subgroup chair: Fialová D, PharmD, PhD.).