

Abstract

Objectives

Main objectives of this doctoral thesis were to review available information on pharmacological properties of benzodiazepines and their age-related changes; to evaluate the prevalence of benzodiazepine use in older patients residing in long term care facilities; to investigate the association between use of benzodiazepines and occurrence of falls in acutely hospitalized older patients; and to describe utilization of benzodiazepines in the Czech Republic.

Methods

A narrative review of literature focused on pharmacokinetics, pharmacodynamics, adverse effects and association of benzodiazepines with falls in older population was conducted. The evaluation of benzodiazepine use in long term care facilities was analysed in a retrospective cross-sectional study using data from the EC 7th Framework Program SHELTER project (Service and Health in the Elderly in Long Term Care). A prospective cohort study data of acutely hospitalized patients in Australia were used to evaluate association between benzodiazepines and falls. To describe utilization of benzodiazepines in the Czech Republic, data from the State Institute for Drug Control and from databases of General Health Insurance Fund were used. This dissertation thesis is a summary of published articles from above stated works and analyses.

Results

The study of patients in long term care facilities showed excessive benzodiazepine use and significant differences in type of benzodiazepines prescribed across European countries and Israel. Analyses of acutely hospitalized patients showed statistically significant association between use of diazepam and falls compared to other benzodiazepines, in particular to oxazepam. The evaluation of benzodiazepine prescription in the Czech Republic outlined decrease in benzodiazepines utilization between 2009-2013 years in older population and variation in prescription patterns across different age groups.

Conclusions

This doctoral thesis gives a comprehensive overview of information and knowledge on benzodiazepine use in older patients. It provides both detail theoretical information on pharmacological characteristics, clinical use and risks of benzodiazepines in geriatric population and important findings from cross-sectional, outcome and utilization studies describing patterns, outcomes and utilization trends in benzodiazepine use in older patients.

Key words: benzodiazepines, geriatric population, pharmacokinetics, pharmacodynamics, indications, contraindications, adverse drug effects, falls, Europe, Israel, Australia