

Oral Administration of Poly-pharmacy in Institutionalized Elderly Patients with Dysphagia

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Abstract

Background: Poly-pharmacy in older people is a major concern in nursing home residents. Different factors can modify oral medications status like swallowing difficulties.

Objective: The aim of this study was to describe the drug-food interactions in institutionalized elderly with dysphagia.

Methods: A descriptive, cross-sectional study was conducted with individualized data for 16 institutionalized older people ≥ 65 years of both sexes (13 women, 3 men) from the Curitiba of Paraná State, Brazil. Data were collected from medical prescriptions and patients medical records. The prescriptions were analyzed for the potential drug interactions using the ATC (Anatomic Therapeutic Chemical) classification proposed by the World Health Organization. Verbal or written informed consent was obtained from all participants.

Results: A total of 16 patients were included in the study, among them 12.5% were males and 87.5% were females. 12 prescriptions were examined with 171 molecules of drug orally. The most frequently used drugs were antipsychotic and anticonvulsant (87.5%), antihypertensive (81.25%), cardiovascular system drugs (75%) and gastrointestinal tract drugs (62.5%). The potential of food-drug interaction was seen in the prescriptions of elderly patients related to Alzheimer's.

Conclusion: Cognitive impairment and use of poly-pharmacy increased the risk of toxic effects in dysphagia patients. Future studies to reduce poly-pharmacy and improve pharmacological appropriateness may facilitate the understanding of pharmacodynamic and pharmacokinetic effects caused by drugs.

Keywords: Dysphagia; Nursing homes; Fooddrug interaction; Older people; Poly-pharmacy

Introduction

The development of multiple diseases chronic increases with age, for example, acute infections, diabetes and heart failure, it often reflecting the use of various medications (poly-pharmacy) [1].

Today, studies have shown that poly-pharmacy affects between 36% and 50% of older nursing home residents receiving more than 6-8 oral medications per day [2,3].

Poly-pharmacy (commonly defined as the use of ≥ 5 drugs), it is risk for developing of interactions that result from adverse drug reactions. These interactions can be classified into two types: Pharmacokinetics and pharmacodynamics of oral medications after administration in geriatric patients with dysphagia remain relatively unexplored and poorly understood [4].

In the elderly institutionalized, the prevalence of dysphagia (defined difficulties moving food from the mouth to the stomach) was observed

to increases with age. It is reported that 68-85% with Parkinson's and Alzheimer's disease patients >75 years were diagnosed with swallowing disorder [5]. Consequently, the aim of this study was to describe the drug-food interactions in institutionalized elderly with dysphagia.

Methods

In this descriptive, cross-sectional study the data was obtained by consulting the medical records of elderly and applying semi-structured interviews with the responsible caregivers, nursing technicians, nursing assistants and nurses of one long-stay institutions for elderly in city of Curitiba of Paraná State, Brazil. The relevant drugs were classified according to the ATC (Anatomic Therapeutic Chemical) classification proposed by the World Health Organization. Verbal or written informed consent was obtained from each participant (n=16) before the initiation of study. Ethics were reviewed and approved by Ethics Committee of Positivo University.

Data analysis

The obtained data were evaluated using statistical software (Prism 6.0, GraphPad Software Inc, La Jolla, Calif). We used descriptive statistics to summarize demographics, disease burden, and drug classes. The data were expressed in numbers and percentage, and $p < 0.05$ was regarded to be significant.

Results

In the present study, 16 individuals including 87.5% were female and 12.5% were male, and 25% are aged between 70 and 80 years, 56.2% are aged 80 to 90 years and 18.7% have ages between 90 and 100 years. In the study there were 21 professionals, which consisted of 2 nurses (E) (9.5%), 12 technicians of nursing (T) (57.1%), 3 nursing auxiliaries (A) (14.3%) and 4 elderly caregivers (C) (19.1%). A total of 12 prescriptions were recorded for the 16 subjects examined in the study, corresponding to 171 molecules of drug orally. The most widely used drugs by the elderly who participated in the study were as follows: antipsychotic and anticonvulsant (87.5%), antihypertensives (81.25%), cardiovascular system drugs (75%) and gastrointestinal tract drugs (62.5%) (Table 1). The most usual pathological diagnoses were 37.5% for Alzheimer's, 31.25% acute stroke, 25% for Parkinson's disease and 18.75% for osteopathy.

Drug classes	Number(%)
Antihypertensive drugs	13 (81.25)
Antipsychotic and anticonvulsant	14 (87.5)
Cardiovascular system drugs	12 (75)
Gastrointestinal tract drugs	10 (62.5)

Table1: Distribution of the drugs used by the elderly included in the research.

Discussion

The results of this study, antidepressant and antipsychotic drugs ranked first and antihypertensive drugs ranked second among the medications classes used by the institutionalized elderly (Table 1). The aging process has been considered the most important risk factor for people with dysphagia and dementia [6]. Previous studies also suggested that antipsychotic and antihypertensive are among the drug classes used in daily practices in nursing homes residents due to significant changes in swallowing [7]. Our findings thus confirm that the combination of Alzheimer's, difficulty in swallowing and number of diseases or medications, can lead to risk factors such as food-drug interactions in this study. The present study found that the percentage of poly-pharmacy was higher among the female participants (87.5%) than that of the male elderly.

The potential of food-drug interaction was seen in the prescriptions of elderly patients related to Alzheimer's. The prevalence of poly-

pharmacy and food-drug interaction is extremely high in the nursing care, due to crush pills or open capsules so that patients presenting problems swallowing and/or behavior issues may take the medicines more easily [2,8]. These practices, marked by frequent errors, increased drug interaction risks as well as adverse effects and even could lead to toxic effects for both patients and caregivers [9]. Based on the finding suggests of this study that nursing should receive more guidance in using strategies to prevent several interactions during the nursing care in dysphagia patients.

Conclusion

Cognitive impairment and use of poly-pharmacy increases the risk of toxic effects and food-drug interaction in dysphagia patients. Future studies to reduce poly-pharmacy and improve pharmacological appropriateness may facilitate the understanding of pharmacodynamic and pharmacokinetic effects caused by drugs.

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