Potentially inappropriate medication in nursing homes: application of the Beers criteria

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Background The elderly population is frequently polymedicated, including with potentially inappropriate medications (PIM). The use of explicit criteria can play an important role in the identification of areas for pharmaceutical interventions.

Purpose This study aimed to characterize and to quantify the occurrence of PIM detected during medication review, in a sample of institutionalized elderly patients.

Method A descriptive cross-sectional study was undertaken in 4 invited nursing homes in the region of Lisboa e Vale do Tejo (n=2) and in Alentejo (n=2). Patients aged ≥65 and using ≥5 medicines were included in the study and their medication was evaluated by a team of pharmacists and a physician using three different tools. This paper presents results obtained using the most recent version of the Beers criteria (American Geriatrics Society, 2012). Data were analyzed using univariate and bivariate descriptive statistics (χ², Spearman, One-way ANOVA, Mann-Whitney U and Kruskal-Wallis), considering a significance level of 5%. The study was ethically approved.

Findings The sample included 161 individuals, with a mean age of 84.7 years (SD=6.35), 68.9% of which were female. A total of 401 PIM were identified through the application of the Beers criteria. The vast majority of the sample (85.1%) presented at least one PIM independent of diagnosis (PIM-ID), and 42.1% had one or more PIM dependent of diagnosis (PIM-DD). The drugs most commonly detected as PIM were benzodiazepines, followed by antipsychotics and first-generation antihistamines. Nearly half of the sample (42.1%) taking PIM were patients with history of fractures. There were significant differences in the number of PIM-DD detected, amongst nursing homes (p=0.002). The location of the nursing home, however, had no impact on the distribution of PIM-ID. The number of PIM was neither influenced by the patients' socio-demographic characteristics, nor by the number of comorbidities, but directly correlated, although weakly, with the number of medicines prescribed (Pearson r=0.241; p=0.002).

Conclusion The application of the Beers criteria in an elderly sample enabled the identification of a considerable number of PIM. The most commonly detected drugs as PIM can lead to falls and fractures and nearly half of the sample with PIM were patients with history of fractures. Therefore this specific aspect of geriatric patient care should be more carefully addressed. The development of pharmaceutical competencies for the care of geriatric patients may constitute the basis for future pharmaceutical intervention opportunities with unquestionable benefit for patient safety.