

Prevalence and Predictors of Potentially Inappropriate Prescribing (PIP) in Middle-Aged Adults: A Cross-Sectional Database Study

Background

Potentially inappropriate prescribing (PIP) refers to prescriptions which may be non-evidence-based, not cost-effective or have a greater chance of risk to patients than benefit. These risks include adverse drug events and hospitalisation, which can increase healthcare costs. Research has focused on PIP in older adults (≥ 65) and has consistently found that a substantial number of prescriptions in primary care may be potentially inappropriate. Research suggests that both polypharmacy and multimorbidity are prevalent in middle-aged adults (45-64), yet there is a paucity of research on their relationship with PIP within this age group.

Aim

The aim of this study was to determine the appropriateness of prescribing in middle-aged adults. The primary objective was to calculate the prevalence of the three most common potentially inappropriate prescriptions as defined by the Prescribing Optimally in Middle-aged People's Treatment (PROMPT) criteria:

- Strong opioids should not be prescribed without the co-prescribing of at least one laxative
- Proton pump inhibitors (PPIs) should not be prescribed at doses above the recommended maintenance dosage for greater than 8 weeks
- Benzodiazepines should not be used long term (greater than 4 weeks)

The secondary objective was to examine which patient and practice factors were associated with increased odds of PIP.

Design and Setting

A retrospective cross-sectional study was conducted using Lambeth DataNet (LDN) in South London (42 general practices, N=1,185,335).

Method

Prescribing and demographic data were extracted from LDN for those aged between 45-64 years who were also prescribed one or more medicines during the year of January 1st to December 31st 2017. Descriptive statistics of the data, including the percentage prevalence of the three PROMPT criteria are reported. Adjusted logistic regression was performed to investigate the association between PIP and polypharmacy, multimorbidity, deprivation, gender and age group. A multilevel regression model was also created to investigate the impact of practice variation on PIP.

Results

This study included 50,614 patients. 5.67% of patients had been exposed to at least one PROMPT criterion. The most prevalent criterion was PPIs (2.85%), followed by strong opioids (2.06%) and benzodiazepines (1.25%). Both multimorbidity (AOR 2.72, CI 2.44-3.04, $p=0.000$) and polypharmacy (AOR 4.42, CI 4.03-4.84, $p=0.000$) were strongly associated with PIP, but no association was found for deprivation, age or gender following adjusted regression.

Conclusions

Given the prevalence of PIP in middle-aged adults, this may mean that those patients are being exposed to avoidable, costly adverse drug events. It also indicates that prescribing quality may be an issue in South London. Future research should investigate the relationship between PIP and adverse outcomes and the impact of primary care interventions, such as clinical decision support tools and electronic prescribing alerts on reducing PIP in middle-aged adults.