The use of preventative treatments (statins, bisphosphates and anti-hypertensives) in older patients with complex health needs: an analysis of UK primary care and linked hospital data

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Background
With an increasing ageing population, the UK NHS is under pressure to provide large amounts of long-term treatments for the prevention of cardiovascular disease and fragility fractures.

Objectives
We aim to characterise the population-level use of key preventative therapies (statins, bisphosphonates and anti-hypertensives) in three cohorts of older patients with complex health needs based on healthcare resource use, frailty (electronic frailty index (eFI) score) and polypharmacy respectively.

Methods
All participants aged 65 or older on 1 Jan 2009, registered to an up-to-standard practice for at least 1 year were identified from a UK primary care database (CPRD GOLD) and linked to Hospital Episode Statistics (HES) and The Office for National Statistics mortality register. Patients were followed up until the earliest of practice last collection date, patient transfer-out date, death date or data download date. Three cohorts were identified based on the top quintile of 1) number of unplanned hospital admissions in HES (cohort1), 2) eFI score (cohort2), and 3) number of different medications prescribed (cohort3), in the previous year. We estimated the point prevalence (PP) at study start date. Incident use was defined as new use after start date without use in the month prior to or on this date. Incidence rates (IR) of each drug group was calculated using Poisson regression model.

Results
A total of 73,724, 100,485 and 100,965 participants were identified in cohorts 1-3 respectively. The PP at start date for statins was 31.7%, 38.7% and 43.6%; for bisphosphates 7.0%, 7.3% and 9.8%; and for anti-hypertensives 50.1%, 59.8% and 66.1% in cohorts 1-3, respectively. The average follow-up time for the three cohort patients was 4.99, 5.06 and 5.18 years respectively. The overall IRs for statins in cohorts 1-3 were 5.31 (95%CI 5.23, 5.38), 5.29 (95%CI 5.23, 5.35) and 5.24 (95%CI 5.18, 5.30) per 100 person-years, respectively. The IRs were lower for bisphosphonates: 2.77 (95%CI 2.71, 2.82), 2.71 (95%CI 2.67, 2.76) and 2.98 (95%CI 2.94, 3.03) in cohorts 1-3 respectively; whereas the IRs of anti-hypertensives were slightly higher or similar compared to the IRs of statins: 6.11 (95%CI 6.03, 6.19), 5.60 (95%CI 5.53, 5.66) and 5.07 (95%CI 5.01, 5.13) in cohorts 1-3.

Conclusions
Statins, bisphosphonates, and anti-hypertensives are commonly prescribed among older patients with complex health needs. Further research is needed on the effectiveness and safety of preventative medications for these patients.

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