

Predictors of second fracture while on treatment with oral bisphosphonates: a multinational retrospective cohort study

Objective: To identify predictors of inadequate response to oral bisphosphonate therapy, defined as the incidence of ≥ 2 fractures while on treatment among incident oral bisphosphonate users with high refill compliance ($\geq 80\%$).

Material and methods: Data from computerized records and pharmacy invoices were obtained from SIDIAP (Catalonia, E) and Danish Health Registries (DK) for all incident users of oral bisphosphonates in 2006–2007 and 2000–2001 respectively. Exclusion criteria: Paget disease, age < 40 , anti-osteoporosis treatment in previous year, and suboptimal refill compliance ($< 80\%$). Fine and Gray survival models accounting for the competing risk of therapy cessation were used to identify predictors of ≥ 2 fractures while on treatment after 6 months of treatment initiation.

Results: 7449/21 385 (34.8%) and 7885/13 949 (56.5%) were compliant oral bisphosphonate users in Catalonia and Denmark respectively. Significant predictors of ≥ 2 fractures while on treatment were older age, and history of recent fracture. Sub-hazard ratios (SHRs) for each of the predictors in each of the datasets are reported in Figure 1.

Conclusion: Older age and recent fracture history are predictors of inadequate response as confirmed in two separate cohorts. Monitoring strategies and/or alternative therapies should be considered for these patients.