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Osteoporosis and fracture risk - a linked data study in Wales

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Introduction

Osteoporosis is a global disease with a 30-40% lifetime fracture risk according to the World Health Organisation. Over half a million people receive treatment for fragility fractures annually in the UK. Osteoporosis incidence is rising with aging populations; however, medical secondary prevention treatment may reduce fracture risk.

Objectives and Approach

Primary aims were to investigate if secondary medical prevention treatment following an index fracture was associated with survival and subsequent fracture risk, evaluated using a pseudonymised population based e-cohort study design. Patients aged $\geq$60 years with an index fragility fracture at any anatomical location were identified from the Secure Anonymised Information Linkage (SAIL) databank. Fracture data were identified from secondary care datasets (emergency department and inpatient) and the National Hip Fracture Register data. In addition linkages were made to primary care datasets for medical prescription and Office for National Statistics records for mortality, supplementing data on demographic characteristics and co-morbidity.

Results

The cohort comprised 81,252 cases between April 2009 and December 2016 of median age 78 years (range 60-109) and 22,896 (28%) males. Medical secondary prevention treatment was received by 29,393 cases (36%). Subsequent fractures were reported for 10,907 cases (14%) and 29,026 cases (36%) died during the study period. For those that received medical prevention, the subsequent fracture and mortality rates were 15% and 28% respectively compared to 12% and 31% for those that did not receive the prevention treatment. Further analyses will include a discrete time competing risks model.

Conclusion/Implications

A population based e-cohort was successfully created by linking data across multiple datasets. Preliminary findings identified that <50% of eligible patients receive secondary medical prevention treatment after an index fragility fracture. These findings may help inform and unify treatment pathways for those at risk of fragility fractures.

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