Objectives

To describe, using real-world (claims) data, the characteristics (e.g., comorbidity, medication) of the female post-menopausal osteoporosis population with increased fracture risk, as defined by German Dachverband Osteologie (DVO) guidelines.

To estimate the imminent (1 year) fracture rates in women with and without osteoporosis.

To estimate the economic burden, in terms of health resource utilization and cost, associated with the increased fracture risk, and compare costs. Specifically, we aimed at showing post-menopausal osteoporosis, are not at an increased risk of fracture.

Background

- Individuals at increased risk of fracture can be identified by several methods such as FRAX or other combinations of risk factors. However, these tools provide the estimate of fracture risk over a lengthy (10 year) period of time.
- Identifying patients at imminent risk (those in whom fracture is likely to occur within 12–24 months) has clear value for prioritizing treatment strategies.
- The German DVO guidelines provide a list of clinical and treatment-related risk factors to identify patients who are at increased risk of osteoporotic fracture (Box 1).
- This research was conducted to assess and confirm risk factors identified in the DVO guidelines using real-world data, and describe the level of imminent risk fracture within the increased risk group.

Methods

Study Design

- Observational study using retrospective German sick fund data (1-5% of the population) for the years 2009-2011.
- The sample was defined based on 2010 data (baseline period) while the study (investigation) year was 2011.

Patients

- Women aged ≥50 who were defined to suffer from osteoporosis (OP) if they had an osteoporotic diagnostic code in the baseline period.
- Following DVO guidelines, osteoporotic women were considered to be at increased risk (IR) of fracture if they fulfilled any of the following conditions in the baseline period: a prescription for one of the anti-resorptive/anabolic agents, ≥6 months (outpatient) or ≥7 months (inpatient) between codes.
- To avoid double-counting, a re-fracture of the same site required at least 6 months (outpatient) or ≥7 months (inpatient) between codes.
- The prevalent OP fractures attributable to osteoporosis was estimated using the approach suggested by Brecht and Schädlich, in line with previous epidemiological studies.

Assessment of Fractures

- Incident fractures (regardless of etiology) were identified using ICD codes S22, S32, S42, S52 and S52, outpatient diagnoses were used for S22, S32, S52 and S52, inpatient diagnoses were used for S22, S32, S42, S52, S72 and S82; outpatient diagnoses were considered non-increased risk (N-IR).
- Osteoporotic women not meeting any of these criteria were considered non-increased risk (N-IR).

Resource Use and Costs

- Incident and outpatient costs were attributed to OP if there was an OP diagnostic code (M8, M80), one of the fracture codes listed above or a pre-specified treatment typically associated with OP (e.g., fracture healing).
- For medication, a list of anti-resorptive/anabolic OP agents was defined which could directly be attributed to OP (patients taking these drugs for alternative indications were already excluded).
- Descriptive analysis on OP-related medical resource utilization, fracture frequency and osteoporosis-related costs were performed.

Results

- Among 34,978 women who were diagnosed or treated for OP: 39,969 (53.3%) were identified as being at increased risk for fracture (Figure 3).
- Women with IR had a mean of 75.2 (SD 9.5) years and were only slightly older than N-IR women (74.0, SD 10.1 years).
- The most frequent comorbidities in IR patients were hypertension (70%) and lipodisosis (44%) (Figure 3).
- There was little difference in frequency and rank order of comorbidities between IR and N-IR patients.
- Approximately half (46.6%) of the IR patients received an OP medication compared to 4.1% in the N-IR group (Figure 4).
- Of those receiving OP treatment: 96.7% received oral bisphosphonates in the IR group.
- Nearly 100% received oral bisphosphonates in the N-IR group.
- Incident fracture events were frequently observed in IR patients, the most frequent being vertebral fractures (Figure 2).
- After applying the algorithm of Brecht and Schädlich for the estimation of fractures attributable to OP, the incidence of fractures remained high in IR patients (6 events per 100 patients) (Figure 2).
- The higher prescription of OP drugs and the higher OP-related utilization and fracture rates in IR patients translated into substantial differences in OP-related healthcare cost (Table 1).
- IR patients had higher mean medical expenses related to OP care.
- Most of the cost was related to taking care of fractures in the inpatient setting.

Conclusions

- Approximately half of the OP population met increased risk definition criteria, yet despite being at increased risk of fracture less than half were receiving an approved therapy for OP.
- The German DVO guidelines/criteria identify patients at a considerable risk of having an imminent fracture (i.e., a fracture that would occur in the next 12 months).
- Increased risk of fracture was confirmed to be associated with greater burden on the healthcare systems and increased related healthcare costs. The higher disease burden and costs were not attributable to comorbid conditions, which were similar between those at increased-risk and those not.

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References


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