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Patients with osteoporosis who remain at high risk for fracture despite benefit of prior bisphosphonate treatment – a Danish perspective

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Conclusion:
In Denmark, 14.6% of the osteoporotic patients remained at high risk for fracture despite persistent bisphosphonate treatment. Alternative treatments may be considered for patients who remain at high risk e.g. through inadequate response to treatment.

Objective:
To estimate the proportion of osteoporosis patients who remain at a high risk for fracture despite being compliant to bisphosphonate treatment.

Material and methods:
This case-control study is based on Danish national health registry data, including data on all hospitalizations, ICD-10 code at admission, and performed tests. Furthermore, results from bone mass density (BMD) scans were collected from three of the five Danish regions, and aggregated with data from the registries.

The patient group of 2,406 patients (66.3% women and 33.7% men) was identified as:

- Age ≥ 50 years
- First bisphosphonate prescription date between 01.01.1996 and 31.12.2008, defined as index date
- ≥12 months pre and ≥36 months post observational data
- A medication possession rate ≥80% for 24 months post index
- ≥1 claim of bone mineral density (BMD) test OR a fracture 12 months prior to 30 days after index date

'High risk' patients were defined as:

- BMD t-score <-2.5 at 24-36 months after index OR
- Any drop in BMD between index and 24-36 months OR
- a fracture at 24-36 months following index

A total of 352 high risk patients were identified, and served as cases. The remaining 2,054 served as controls.

Results:
The proportion of high risk patients despite benefit of prior bisphosphonate treatment in Denmark is 14.6% (14.3% for women and 15.2% for men).

T-scores were significantly different at both index and follow-up between cases and controls (p<0.001). High risk patients were more likely to smoke (OR: 2.5, p<0.001), have lower plasma calcium and/or vitamin D (OR: 3.4, p<0.001), and were more frequently diagnosed with anorexia nervosa (OR: 5.9, p=0.045). Furthermore, the high risk patients had a significant higher Charlson score (p=0.014), with a relative risk of 2.33 for scores >8 between cases and controls.