

Supplementary article data

Risk of atypical femoral fracture during and after bisphosphonate use

Full report of a nationwide study

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Table 1. ICD-10 codes for Charlson comorbidity index (Quad et al. 2005)^a

Comorbidities	ICD-10 codes
Myocardial infarction	I21.x, I22.x, I25.2
Congestive heart failure	I09.9, I11.0, I13.0, I13.2, I25.5, I42.0, I42.5–I42.9, I43.x, I50.x, P29.0
Peripheral vascular disease	I70.x, I71.x, I73.1, I73.8, I73.9, I77.1, I79.0, I79.2, K55.1, K55.8, K55.9, Z95.8, Z95.9
Cerebrovascular disease	G45.x, G46.x, H34.0, I60.x–I69.x
Dementia	F00.x–F03.x, F05.1, G30.x, G31.1
Chronic pulmonary disease	I27.8, I27.9, J40.x–J47.x, J60.x–J67.x, J68.4, J70.1, J70.3
Rheumatic disease	M05.x, M06.x, M31.5, M32.x–M34.x, M35.1, M35.3, M36.0
Peptic ulcer disease	K25.x–K28.x
Mild liver disease	B18.x, K70.0–K70.3, K70.9, K71.3–K71.5, K71.7, K73.x, K74.x, K76.0, K76.2–K76.4, K76.8, K76.9, Z94.4
Diabetes without chronic complication	E10.0, E10.1, E10.6, E10.8, E10.9, E11.0, E11.1, E11.6, E11.8, E11.9, E12.0, E12.1, E12.6, E12.8, E12.9, E13.0, E13.1, E13.6, E13.8, E13.9, E14.0, E14.1, E14.6, E14.8, E14.9
Diabetes with chronic complication	E10.2–E10.5, E10.7, E11.2–E11.5, E11.7, E12.2–E12.5, E12.7, E13.2–E13.5, E13.7, E14.2–E14.5, E14.7
Hemiplegia or paraplegia	G04.1, G11.4, G80.1, G80.2, G81.x, G82.x, G83.0–G83.4, G83.9
Renal disease	I12.0, I13.1, N03.2–N03.7, N05.2–N05.7, N18.x, N19.x, N25.0, Z49.0–Z49.2, Z94.0, Z99.2
Any malignancy, including lymphoma and leukemia, except malignant neoplasm of skin	C00.x–C26.x, C30.x–C34.x, C37.x–C41.x, C43.x, C45.x–C58.x, C60.x–C76.x, C81.x–C85.x, C88.x, C90.x–C97.x
Moderate or severe liver disease	I85.0, I85.9, I86.4, I98.2, K70.4, K71.1, K72.1, K72.9, K76.5, K76.6, K76.7
Metastatic solid tumor	C77.x–C80.x
AIDS/HIV	B20.x–B22.x, B24.x

^a ICD-10 diagnosis codes were retrieved from the National Patient Register. Charlson's comorbidity index predicts the 10-year mortality considering a range of comorbid conditions. Each condition is assigned a score of 1–6 depending on the risk of dying associated with this condition.

Table 5. Odds ratios (ORs), with 95% confidence intervals (CIs), for femoral stress fractures associated with bisphosphonate use by age, comorbidity, and other drug use

Bisphosphonate use	Cases	Controls	Age- and sex-adjusted OR (CI)	Multi variable-adjusted ^a OR (CI)
Age < 80 years				
Never use	25	270	1.0 (ref.)	1.0 (ref.)
Ever use	79 (76%)	46 (15%)	17 (9.9–30)	20 (8.2–47)
Age > 80 years				
Never use	13	572	1.0 (ref.)	1.0 (ref.)
Ever use	55 (81%)	64 (10%)	31 (21–47)	28 (19–42)
No use of proton-pump inhibitor				
Never use	29	591	1.0 (ref.)	1.0 (ref.)
Ever use	78 (73%)	73 (11%)	26 (13–50)	26 (13–54)
Use of proton-pump inhibitor				
Never use	9	251	1.0 (ref.)	1.0 (ref.)
Ever use	56 (86%)	37 (13%)	31 (15–66)	26 (17–41)
No use of cortisone				
Never use	33	726	1.0 (ref.)	1.0 (ref.)
Ever use	86 (72%)	75 (9%)	29 (15–54)	28 (15–54)
Use of cortisone				
Never use	5	116	1.0 (ref.)	1.0 (ref.)
Ever use	48 (91%)	35 (23%)	26 (6.0–117)	29 (7.4–110)
No previous fracture				
Never use	21	501	1.0 (ref.)	1.0 (ref.)
Ever use	75 (78%)	53 (9%)	38 (27–53)	46 (29–73)
Previous fracture				
Never use	17	341	1.0 (ref.)	1.0 (ref.)
Ever use	59 (78%)	57 (14%)	16 (13–20)	16 (13–19)

^a Adjusted by age (continuous), sex, cortisone use (yes/no), and Charlson's index (continuous).
NA: not applicable.