Osteologie 2022; 31(03): 199
DOI: 10.1055/s-0042-1755849

Abstracts
Vorträge

Gamma-glutamyl-transferase is associated with incident hip fractures in women and men≥50 years: a large population-based cohort study in Vorarlberg (Austria)

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Kongressbeitrag | Volltext (/products/ejournals/html/10.1055/s-0042-1755849)

Introduction Increased serum levels of gamma-glutamyl-transferase (GGT) have been implicated with low bone mineral density and increased fracture risk. We herein examined a possible relation between serum levels of GGT and hip fracture risk in women and men aged≥50 years which has not been investigated before.

Methods In this population-based prospective cohort study, approximately 41,000 women and nearly 33,000 men≥50 years participating in a medical prevention program 1985-2005 in Vorarlberg in western Austria were followed up for the occurrence of osteoporotic hip fractures during 2003-2013. ICD-10 based discharge diagnoses for hip fracture included S72.0, S72.1, and S72.2 available from all six regional hospitals. GGT-related hip fracture risk was ascertained at each participant´s first and last examination during the prevention program. Covariates included age, BMI, blood pressure, triglycerides, total cholesterol, serum uric acid, diabetes, smoking status, and, in a sub-cohort, alcohol consumption.

Results Median follow-up time was 18.7 and 16.9 years in women and men, respectively, starting from their first health examination in the study interval, and 10.0 and 9.7 years in women and men, respectively, from their last examination. Consistently, women and men were on average younger at their first (57.1±7.5 years and 56.4±6.6 years, respectively) than at their last examination (64.2±9.4 years and 62.8±8.8 years, respectively). In men, hip fracture risk rose significantly by 75% and 86% for every tenfold increase of GGT measured at first and last examination, respectively, and in women, hip fracture risk rose by 22% from the last examination. Elevated GGT (≥36 U/l in women,≥56 U/l in men) at the first examination was associated with increased hip fracture risk only in men (HR 1.51, 95%-CI 1.25-1.82), and at the last examination in both women (HR 1.14, 95%-CI 1.02-1.28) and men (HR 1.61, 95%-CI 1.33-1.95). Alcohol consumption had no significant influence on GGT-mediated hip fracture risk in women and men.

Discussion Our findings identified an association of elevated GGT and hip fracture in women and men≥50 years and suggest GGT as candidate serum marker of long-term hip fracture risk in an elderly population.

Keywords Gamma-glutamyl-transferase, hip fracture,osteoporosis, Vorarlberg Health Monitoring and Promotion Program

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Publikationsverlauf

Artikel online veröffentlicht:
08. September 2022

Georg Thieme Verlag
Rüdigerstraße 14, 70469 Stuttgart, Germany