

Oral Abstract

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Post-fracture mortality in men: contributions of sex hormones and bone mineral density as risk factors

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The relationship between sex hormones and mortality in men is controversial. We examined the effect of sex hormones on the risk of post-fracture mortality.

Total testosterone and sex hormone-binding globulin (SHBG) were measured by tandem mass spectrometry in 609 men aged 60+ (as of 1989) and whose health status had been monitored for 18 years. During the follow-up period, fractures and mortality were ascertained. Basic clinical and anthropometric variables and baseline bone mineral density (BMD) were also measured.

During the follow-up period, 113 sustained a fracture and 275 men died; among whom 69 died following a fracture. Fracture was associated with a 50% increase in the risk of mortality (RR 1.5, 95% CI: 1.4 – 1.6). Lower levels of testosterone were associated with an increased risk of mortality (1.7, 1.2 – 2.6) and of fracture (1.5, 1.2 – 1.8) after adjusting for SHBG. More importantly, the risk of mortality after a fracture was significantly increased in those with lower total testosterone levels (3.1, 1.4 – 7.0) after adjusting for SHBG, weight and age. In multivariable analysis, lower total testosterone, lower BMD (or weight), lower SHBG and advancing age were independent risk factors of post-fracture mortality. These factors collectively accounted for ~60% of total mortality risk.

These results indicate that sex hormones were independent predictors of post-fracture mortality in elderly men, and that mortality should be considered as an important component of osteoporosis outcomes. These data also suggest that it is possible to identify men at high risk of post-fracture mortality.