BONE

Depression—a novel risk factor for low BMD

A substantial loss of BMD detected in women with depression and in patients with clinical depression suggests an association between depression and low BMD, according to a US research group.

Several studies have investigated a link between depression and loss of bone mass or fracture incidence, but the inconsistency of reported findings has made valid conclusions difficult.

Wu and colleagues performed a meta-analysis of 14 epidemiological studies published between 1966 and 2008. Eight cross-sectional and six case–control studies involving a total of 10,523 participants provided data on BMD and the mean and variance of outcome differences between individuals with or without depression. The variables addressed by subgroup analyses included sex, mean age (≥45 years or <45 years), clinical diagnosis of depression, study design and geographical location of the study.

The meta-analysis revealed that depression was associated with a mean difference in BMD between depressed and nondepressed individuals of 5.9% at the spine and 6.0% at the hip. The association was consistent even after adjustments for age, sex, weight or BMI. In the group with depression, women and participants <45 years exhibited the most prominently reduced BMD. Furthermore, patients with clinical depression had an additional decrease in BMD when compared with participants without depression.

"These findings resolve the conflicting information reported in the literature and suggest that depression is a substantial, yet previously unrecognized, major risk factor for osteoporosis, similar to other well-established risk factors such as smoking, alcohol use, inactivity, low calcium intake, and family history of osteoporosis," comments Qing Wu, lead author of the study.

Prospective studies will focus on the association between depression and bone loss or fracture risk and attempt to determine whether the association between reduced BMD and clinical depression might result from the pharmacological treatment of depression rather than the disease alone. "Successful treatment of depression may prevent bone loss and osteoporosis," concludes Wu.

Linda Koch

Original article Wu, Q. *et al.* Depression and low bone mineral density: a meta-analysis of epidemiologic studies. *Osteoporos. Int.* **20**, 1309–1320 (2009).