Risk of Fracture and Bone Mineral Density in Stroke

To the Editor:

We read with great interest the article by Pouwels and colleagues1 dealing with the risk of hip/femur fracture and stroke. The results of their study demonstrated that a 2-fold increased risk of hip/femur fracture was observed in patients who experienced a stroke. In addition, the authors showed that the risk was highest among patients <71 years old, females, and those whose stroke was more recent. The authors proposed that fall prevention programs, bone mineral density (BMD) measurements, and use of bisphosphonates may be necessary to minimize hip fractures in the elderly during and after stroke rehabilitation.

Several studies have shown that there were significant associations between low BMD and stroke in elderly women.2,3 On the other hand, it was shown that the rate of bone loss at the femoral neck was increased with blood pressure in elderly white women.4 In a study we presented previously, a relationship between BMD and hypertension was investigated in women. Using the dual-energy x-ray absorptiometric method, we demonstrated that BMD in the lumbar spine was significantly decreased in elderly hypertensive women compared with elderly normotensive women.5 In addition, BMD was inversely correlated with systolic blood pressure, suggesting that high blood pressure might be associated with the decrease in BMD in elderly women. There has been much evidence showing that hyperten- sion is related to abnormalities of calcium metabolism such as increased calcium losses from the kidney and secondary activation of parathyroid glands. We demonstrated that 24-hour urinary calcium excretion was significantly greater in hypertensive women than in normotensive women.5 Furthermore, the greater the calcium excretion, the lower the BMD was in women. The results might suggest that increased urinary calcium could lead to a decrease in BMD in female hypertensive subjects.5 In this context, it can be speculated that in women with high blood pressure and lowered BMD, disturbances in the calcium metabolism are more pronounced. Although the authors analyzed their data after adjustment for use of antihypertensive agents such as β-blockers, thiazide diuretics, renin–angiotensin–aldosterone system inhibitors, and calcium channel blockers, we would like to know whether the magnitude of blood pressure might be linked to the risk of hip/femur fracture in the population in the study of Pouwels and colleagues. Because hypertension is the major risk factor for cerebrovascular diseases, it would be important to assess more precisely whether more bone loss with higher blood pressure may be associated with increased stroke incidence and fracture risk in the elderly.

Disclosures

None.

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