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Commentary

Association between Osteoporosis and Hypertension in Elderly Postmenopausal Women

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DESCRIPTION

Diagnoses of both Hypertension (HTN) and osteoporosis have been rising globally due to a rise in the population over 50 years old brought on by an increase in longevity. The national health nutrition examination survey estimated that 25% of women over 60 years of age had osteoporosis, 50% of women over 50 years of age had low bone mass, and 20% to 40% of people globally had hypertension. These two diseases' higher comorbidities and mortality rates highlight their clinical risk. On the one hand, HTN accounts for 1%-4% of all causes of death and is a significant risk factor for ischemic heart disease, renal failure, and other ischemic vascular diseases.

Osteoporotic fractures are a significant factors causing disability. One year after a hip fracture, there is an additional 20% mortality rate. Recent epidemiological and biological investigations have revealed that low calcium intake levels, vitamin D and vitamin K inadequacy, and low or extremely high levels of nitric oxide are the common etiopathologies for both HTN and osteoporosis. In this study, low bone mass, osteoporosis, and hypertension were found to be prevalent in postmenopausal women, and the relationship between osteoporosis, hypertension, and antihypertensive medication use was evaluated. Among the aged population, HTN and osteoporosis are relatively prevalent disorders. Mostly, out of 813 postmenopausal women, nearly half (24%) had osteoporosis and 45.2% had low bone mass. These findings matched those of numerous other research conducted in the West and the Middle East. According to previous other prospective studies, rates of bone loss from the spine and hip were 1% to 2% of its total mass during the early postmenopause phase and approximately 35% to 55% slower loss during the late menopause phase. As a result, osteoporosis prevalence increased significantly as age and menopause duration prolonged. It was observed that a substantial negative association between BMI and the prevalence of osteoporosis could be attributed to the anabolic action of adipokines secreted by adipose tissue.

The precise mechanism underlying how HTN affects osteoporosis in people is yet unclear. Many different mechanisms have been suggested. Recent studies have shown that hypertensive subjects had higher levels of the hormone ghrelin, which directly affects bone by inhibiting bone resorption and enhancing bone formation. High blood pressure has been linked to increased calcium loss in the urine, which results in a negative calcium balance of bone remodelling, and increased levels of parathyroid hormone, which speeds up bone turnover and decreases bone mass. Additionally, antihypertensive medications may also affect bone. According to the results of the analysis, taking thiazides or beta blockers was substantially linked to higher levels of total lumbar BMD. In order to better understand how beta blockers might increase BMD, research had examined the effects of beta blockers on the bone. According to studies using animal models, inactivating the sympathetic nervous system reduces osteoclastic bone resorption and hence boosts bone growth. Additionally, certain findings showed that beta blockers had positive effects on people who were osteoporotic, despite the fact that analyses had not demonstrated any improvements in BMD with treatment. Similar to this, thiazides might be important in preventing bone loss. Thiazides reduce urine calcium excretion by blocking the distal tubule's sodium chloride cotransporter.

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