Letters to the Editor

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Letters on Management of Ischemic Stroke

Original Article: Subacute Management of Ischemic Stroke

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TO THE EDITOR: The authors of this article state that heparin and low-molecular-weight heparin (LMWH) have been shown to reduce the incidence of venous thromboembolism after ischemic stroke. They support this statement by citing a trial comparing heparin with LMWH, not a study comparing these modalities with no treatment. A 2000 meta-analysis recommends against LMWH in patients with stroke.[1]

A few low-quality trials have reported decreased mortality with heparin products in patients with stroke.[2] As a result, several guidelines have recommended the use of heparin and LMWH for patients with ischemic stroke. However, the American College of Physicians recently reevaluated the outcomes of deep venous thrombosis prophylaxis in these patients.[3] The review showed that heparin prophylaxis had no significant effect on mortality, may have reduced pulmonary embolisms, and led to more bleeding and major bleeding events; therefore, there was little or no net benefit. There were no differences between the types of heparin used. Mechanical prophylaxis provided no benefits and had clinically important harms in patients with stroke.

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TO THE EDITOR: I have recently read this excellent article regarding subacute stroke management. I noticed, however, that one important aspect of management was not mentioned: vitamin D supplementation to prevent falls.

Accidental falls after stroke can result in large bone fracture, a rare but potentially devastating and life-threatening complication. Following stroke, 1 percent of patients sustain upper or lower limb fractures, with 80 percent of hip fractures occurring on the hemiparetic side.[1] The greatest risk of an accidental fall and hip fracture is within the first year after a stroke. Without the complicated comorbidity of stroke, conservative estimates of mortality from complications of a hip fracture are 15 to 20 percent.[2] With stroke as a comorbidity, this percentage is likely much higher, and prevention could prove to be lifesaving.

There is fairly good evidence that 700 to 1,000 IU of vitamin D supplementation can reduce the risk of accidental falls by 19 percent in the general older population.[3] There is also evidence that this prophylactic treatment may reduce falls in patients who have recently had a stroke.[4,5] However, it is unclear whether vitamin D supplementation initiated immediately after a subacute stroke is beneficial within the initial peak fall period (i.e., the first year). Vitamin D supplementation should be implemented as a routine measure in older patients and in the subacute period after stroke for primary prevention of falls.

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IN REPLY: Ten percent of early deaths after an acute ischemic stroke are attributed to fatal pulmonary embolisms.[1] The American Heart Association/American Stroke Association Stroke Council, American College of Physicians, and American College of Chest Physicians have recommended the use of subcutaneous heparin products for patients at higher risk of venous thromboembolism (VTE), including patients with immobility, after an acute ischemic stroke.[1-3]

The American College of Physicians recently published a meta-analysis that failed to show a reduction in mortality, pulmonary embolism, or symptomatic deep venous thrombosis with the use of heparin prophylaxis in the setting of acute ischemic stroke, regardless of mobility status.[4] It continued to recommend chemical prophylaxis for VTE prevention following an acute ischemic stroke, except when the risk of bleeding exceeded the potential benefit, but recommended against policies that promote universal prophylaxis without consideration of individual risk based on mobility status. Recently, the American College of Chest Physicians updated its guidelines for VTE prophylaxis and also reviewed the available data for VTE prophylaxis following an acute ischemic stroke. It concluded that heparin prophylaxis led to 12 fewer deaths and five fewer pulmonary embolisms.[3] Based on this review, it suggests the use of VTE prophylaxis with heparin-based products or mechanical devices over no prophylaxis in patients with decreased mobility after an acute ischemic stroke.

Ultimately, it is the physician's role to weigh the risks and benefits of VTE prophylaxis with knowledge that universal prophylaxis may not be beneficial. At this time, all major organizations continue to recommend the use of VTE prophylaxis in the setting of decreased mobility after an acute ischemic stroke.

Dr. Baeseman raises an excellent point in his letter, and we appreciate his thoughtful comments on routine supplementation with ergocalciferol to prevent hip fractures after stroke. Vitamin D supplementation indeed decreases falls and hip fractures among the general population.[5] Bone mineral density decreases after acute stroke because of immobilization-based hypercalcemia and preexisting vitamin D deficiency.[6] Although a Japanese study of 96 older women with hemiplegia demonstrated a statistically significant decrease in hip fracture risk after stroke, study participants were all in the convalescent phase at least two years after an acute stroke.[7] Prevention of falls and hip fractures following stroke is critical. In addition to vitamin D supplementation, other effective long-term preventive methods include using hip protectors, increasing cardiorespiratory fitness and muscle strength, and using antiresorptive agents such as bisphosphonates and selective estrogen receptor modulators.[6,8] The optimal timing of initiating these therapies is not known. Given the available evidence, it is probably reasonable to ensure that patients with hemiplegia who have lower-than-normal vitamin D levels receive supplementation during acute stroke rehabilitation; however, initiating routine ergocalciferol supplementation in all patients within the two-week subacute period following a stroke is not currently supported by the literature.

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