

Osteoporotic fracture complicating Guillain-Barré syndrome

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Guillain-Barré syndrome is an acute inflammatory demyelinating polyradiculoneuropathy often associated with a prolonged period of immobilization. Between 71 and 80% of patients make a full or near full recovery, but there is a 5–11% mortality and the remainder have an incomplete recovery (Rees, 1995; The Italian Guillain-Barré Study Group, 1996). The paralysed patient with Guillain-Barré is susceptible to the complications of immobility: venous thromboembolism, hypostatic pneumonia and contractures. Osteoporosis is a silent, poorly recognized risk and contributes to significant morbidity and increased hospital stay.

DISCUSSION

Bone tissue is present in reduced quantity in osteoporosis but is normally mineralized. Most hip fractures follow a fall from standing height or lower in people with reduced bone strength. Individuals who are immobilized lose

bone rapidly and the degree of bone loss depends on the length of immobilization (Saltzstein et al, 1992; del Puente et al, 1996).

Our patient had prolonged treatment with subcutaneous heparin while immobile to reduce his enhanced risk of deep vein thrombosis and pulmonary embolism. The low molecular weight form was used later in the course of his illness. Heparin is associated with osteoporosis, particularly when large doses have been given for a prolonged period of time, for example during pregnancy (de Swiet, 1992).

The patient was treated with bisphosphonates which are potent inhibitors of osteoclastic bone resorption and increase bone mineral density in established osteoporosis. Studies suggest an increase in spine density by 5% over 2 years (Harris et al, 1993).

Prolonged treatment is required to treat osteoporosis and patients are at greatest risk of falls as they start to mobilize independently again, but it is

not clear whether bone density will increase in patients on bisphosphonates who are immobile.

CONCLUSIONS

Risk factors for osteoporosis should be rigorously reviewed early in Guillain-Barré and further study with serial bone mineral density measurements considered in all patients with severe Guillain-Barré. **HM**

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CASE REPORT

A 23-year-old, previously fit male with Guillain-Barré required ventilation on the intensive care unit for nearly 2 months. Five months into his illness he was still an inpatient on the rehabilitation ward and while walking in physiotherapy with forearm crutches he had a fall. He sustained an ankle fracture. Radiograph of the tibia and fibula suggested osteoporosis. Bone mineral density of his lumbar spine and femur was measured using dual energy X-ray absorptiometry (DEXA). Figure 1 shows the percent of normal age-matched bone density at various sites in the femur and lumbar vertebrae at 7 months into his illness (1994), 6 months later (1995) and 42 months later (1997). In his lumbar spine this was significantly reduced at 78–84% and at the femoral neck to 72% of the age-matched value 7 months after the onset of Guillain-Barré syndrome.

He was given two cycles of treatment with 400 mg disodium etidronate daily for 14 days then calcium carbonate 1.25 g daily for 76 days and his lumbar spine bone density increased to 84% of the age-matched value. He has had continuous cycles of treatment since then and his most recent bone density measurement 42 months after the onset of his illness, although much improved, still lies within the osteopenic range.

His obvious risk factors included: 21 weeks of lower limb immobility; 8 weeks of subcutaneous heparin 5000 iu twice daily and 14 weeks of low molecular weight heparin 2500 iu daily. He also used a low air loss pressure-relieving mattress for 16 weeks. There were no known premorbid risk factors.

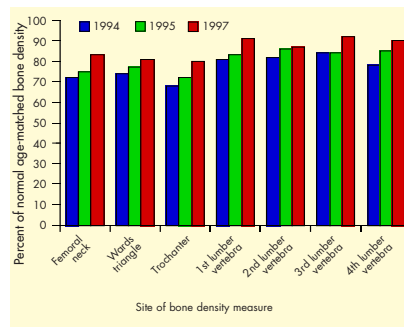


Figure 1. Bone densitometry in a 24-year-old male rehabilitating from Guillain-Barré syndrome.

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