

This paper was presented at the twenty-ninth annual meeting of the Child Neurology Society, Adam's Mark Hotel, St. Louis, Missouri
October 25-28, 2000

This abstract was published in Annals of Neurology,
volume 48, page 545, September, 2000

P100. Calcitonin Treatment of Osteoporosis in Severe Cerebral Palsy

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Children with cerebral palsy can experience severe osteoporosis. Calcitonin is used to treat postmenopausal osteoporosis. The effect of calcitonin on cerebral palsy disuse osteoporosis has not been previously reported. Six individuals who had a fracture were identified (age range, 15–27 years, mean, 25 years; 2 females, 4 males). All had quadriplegic cerebral palsy, were wheelchair-bound, and were fed by gastrostomy tubes. All were receiving adequate amounts of calcium and vitamin D. Serum calcium and vitamin D levels were normal. None had received any steroid treatments. Each was treated with one calcitonin nasal spray (200 units), five times per week, 3 months of treatment alternating with 1 month of no treatment. All underwent bone mineral density (BMD) determinations using a Hologic QDR-1000 X-ray Bone Densitometer (DXA) before and after 1 year of treatment. Baseline BMD determinations revealed severe osteoporosis. The T scores were below -2.5 in all cases (range, -2.98 to -4.8 ; mean, -4.14). After 1 year of calcitonin treatment, in 1 case the BMD determination decreased in the lumbar spine and hip by 5% and 6% respectively. In all the other cases, BMD determinations significantly improved. The BMD increases in total hip determinations were 9% and 16%; in femoral neck determinations, 5%, 7%, and 27%; in lumbar spine determinations, 5% and 15%, respectively. For comparison, in postmenopausal osteoporosis, the yearly average improvement in BMD with calcitonin is 3.2%. These results indicate that calcitonin may be an effective treatment of cerebral palsy disuse osteoporosis. Further clinical investigations are warranted.