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Abstract / Details / Synopsis

Praval bhasma (PB; Coral calx) is a natural source of rich calcium widely used in traditional system of Indian medicine as a supplement in the treatment of variety of bone metabolic disorders associated with calcium deficiency. The present study was designed to investigate the inhibitory effects of Praval bhasma on the progress of bone loss induced by ovariectomy and concurrent calcium deficiency (CD-OVX). Twenty-four female rats were ovariectomized, 12 sham operated, divided into three groups of 12 each, fed on low calcium diet (0.04% Ca) and treated either with vehicle or Praval bhasma (65 mg/kg body weight, twice a day) for 16 weeks. Compared to sham rats, CD-OVX animals showed an increase in urinary excretion of calcium (Ca) and phosphorus (P), decreased femoral weight and density which were significantly reversed in Praval bhasma treated animals. Measurement of cortical bone morphometric indices by CT-scanning technique showed increased medullary width and cross-sectional area, decreased periosteal area (PA), combined cortical thickness (CCT) and cortical area (CA)/periosteal area in CD-OVX animals compared to sham and PB-treated group. Scanning electron microscopy (SEM) study revealed porous and erosive appearance of the distal femur at the epiphysis and reduced Ca:P ratio in CD-OVX animals compared to sham and PB-treated group. Ash weight, percent ash, ash Ca and ash P levels were lower in CD-OVX animals than in sham or PB group. Histological examination of decalcified femurs showed narrowed and disappearance of trabeculae and widened medullary spaces and decreased impact strength as measured by impact test in CD-OVX animals compared to sham and PB-treated group. The present study

concludes that Praval bhasma is effective in the prevention of calcium and estrogen deficient bone loss and justify the continuing use of this ayurvedic preparation in traditional system of Indian medicine for management of bone metabolic disorders such as osteoporosis.

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