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Cuttlebone used as a bone xenograft in bone healing

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This study was conducted to examine the potential of cuttlebone xenograft in the healing of bone using radiography and histology for a period of 24 weeks. One hundred and five New Zealand male rabbits with radius defects in the metaphyseal region were divided into five groups treated with cuttlebone, demineralized bone matrix, bovine cancellous graft, and tricalcium phosphate. The control was no treatment. Clinical, radiological, biochemical and histological evaluations were made 1, 2, 3, 4, 6, 12, and 24 weeks after surgery. Physiological measurements (body temperature, heart rate, and respiratory rate) were not affected by the treatments. The radiological score was greatest in the demineralised bone matrix and tricalcium phosphate groups (score of 8), followed by the bovine cancellous graft (score of 6), cuttlebone (score of 6), and control groups (score of 5). The histological score was greatest in the tricalcium phosphate group (score of 55), followed by the cuttlebone (score of 50), bovine cancellous graft (score of 48), demineralized bone matrix (score of 44) and control groups (score of 42). Oxidative enzyme activities were not different across the treatments. The lack of reinfection and infection responses and faster bone union highlight the potential of cuttlebone xenograft in orthopaedic surgery.

Keywords:

cuttlefish backbone; bone xenograft; bone healing; radius; rabbit

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