FEATURES

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Stem Cells for Reutilization in Bone Regeneration

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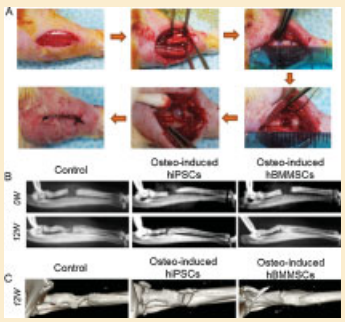
Bone is one of the most transplanted tissues. While most bone defects heal spontaneously, critical size defects caused by major trauma/malignant tumor and osteonecrosis of femoral head in young adults pose a great challenge in treatment. While the golden standard in treating bone defects is autologous bone grafting, available bone for grafting is quite limited in an individual. To solve the dilemma, stem cell therapy has been tried as a new modality of treatment in lesions not amenable to autologous bone grafting. While successful results were reported from individual studies, the stem cell therapy is still not an established treatment modality for bone regeneration and needs further assessment. The focus is to introduce stem cell sources that have been investigated so far and review the current status of stem cell reutilization for bone regeneration as well as suggesting future perspectives.



Cardiovascular Complications of Calcium Supplements

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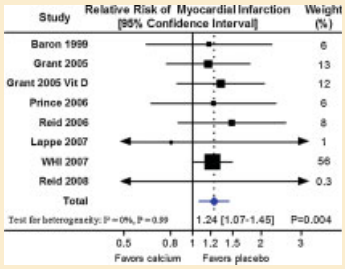
There is longstanding concern that calcium supplements might increase cardiovascular risk in patients with renal impairment. The Auckland Calcium Study suggested that the same problem occurs in older people taking these supplements for prevention of osteoporosis. The subsequent meta-analyses, (which followed protocols finalized before the data was available) confirmed that calcium supplements, with or without vitamin D, adversely affected risk of myocardial infarction and, possibly, stroke. Several groups have revisited the data, consistently finding an adverse effect of calcium on myocardial infarction, not always statistically significant because some meta-analyses have been under-powered. Whether or not an adverse effect of calcium plus vitamin D on myocardial infarction is found depends on whether two specific groups of subjects are included—the Women's Health Initiative who were already taking calcium at the time of randomization, and subjects from an open, cluster-randomized study in which baseline cardiovascular risk was different between groups. Vitamin D alone does not affect vascular risk, so it is unlikely that differences between calcium alone and calcium plus vitamin D are real, and they are more likely to result from the inclusion of studies at high risk of bias. The mechanisms of the adverse cardiovascular effects are uncertain but may be mediated by the increase in serum calcium following supplement ingestion, and the effects on vascular function and coagulation. Available evidence suggests the risks of calcium supplements outweigh any small benefits on fracture incidence.



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