Mesenchymal stromal cells: a novel treatment option for steroid-induced avascular osteonecrosis.

Abstract: Mesenchymal stromal cells are multipotent cells capable of tissue repair and immune modulation. They are primarily found in bone marrow, but are also present in other tissues of mesenchymal origin, such as fatty tissue, muscle, tendons, etc. MSC can easily be obtained by bone marrow aspiration, showing a rapid expansion in vitro. New protocols enable cell culture without the use of animal-derived sera and artificial growth factors. Avascular necroses of the bone may have different causes. AVN in autoimmune and hematological diseases show a strong association with corticosteroid treatment, which is often unavoidable in severe cases. Until recently, core decompression of the affected osseous area was the standard approach. Because of their differentiation properties, easy accessibility and proliferative capacity, autologous MSCs could potentially complement AVN treatment by adding fresh "osteogenic cells" to the healing process.