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Regenerative potential of adipose tissue derived mesenchymal stromal cells in canine cutaneous wounds: A clinical trial report

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Mesenchymal stem cells (MSC) have generated a great amount of interest over the past decade as a novel therapeutic conception for a variety of diseases. Adult mesenchymal stem cells (MSC) are multipotent cells able to differentiate into different lineages. These cells migrate to, and engraft in, sites of inflammation after systemic administration exerting local effects in the resident tissues. We evaluated the clinical value of the application of cultured adipose derived allogenic mesenchymal stem cells (MSCs) in canine skin wounds. The dog used in this study was treated according to the Spanish (Real Decreto 53/2013) and European Community legislation for the care of the experimental animals. Dog owner signed an informed consent form accepting this treatment. A healthy Bodeguero Andaluz dog with skin wounds bites on the dorsum, was treated (IM) for eight days with an anti-inflammatory (Meloxicam 0.2 mg/kg on the first day, and followed 0.1 mg/Kg/ day), and antibiotics (Amoxicillin Trihydrate 15 mg/kg q 48 hours, and enrofloxacin 5 mg/kg daily). At three days of the beginning of this protocol, 107 allogenic MSCs were injected intradermally in the treated wounds: "in situ" and at three cm. Control wound had a conventional treatment with Blastoestimulina* 1% ointment until wound healing. Biopsies of the control and treatment wounds were performed for studying *TBP, GAPDH, MMP-2, Oct4, Runx2, sox9* and *PPary* gene expression by RT-PCR, at 0, 7 and 10 days post-treatment. Follow-up of re-epithelization was illustrated with photographs. Compared with the conventional procedure, MSC-treated wounds showed more rapid wound closure. In addition, we confirm for the first time the role of adipose MSC in skin regeneration by expression of *TBP and Oct4 genes*.

Biography

Concepción Tejero is a Professor of Biochemical and Molecular Biology since 1984. At present, she is the Director of the Experimental Hematology UCM research group. She has published more than 45 papers in reputed journals.

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