LETTER TO THE EDITOR

Autologous bone marrow-derived stem cells in wound healing

Dear Editors,

We read with great interest the recent article by Akela et al. (1) published in International Wound Journal in October discussing the important issue of application of autologous bone marrow-derived stem cells for the treatment of experimental wounds created in animal models.

Various examinations and investigations have been carried out by the authors, except for microbiological analysis of wound for infection, to substantiate their findings. These included clinical examination and macroscopic evaluation of the wound healing, evaluation of granulation tissue, gross morphological studies, biochemical studies, and histomorphological and histochemical studies. The overall results of these examinations showed encouraging findings in favour of use of bone marrow-derived nucleated stem cells for the effective treatment of wounds. The most confirmatory and conclusive investigations (histological and histochemical studies) also showed that the bone marrow cells augment wound healing activity significantly by increasing cellular proliferation, formation of granulation tissue, neovascularization, synthesis of collagen, epithelization and early histological maturation.

It appears from the study protocol that all wounds were fresh wounds for which treatment was started on the same day of wound creation and all the animals under study were given broad spectrum antibiotic enrofloxacin at 5 mg/kg body weight once daily for 5 consecutive days post-operatively. It also appears from normal results of clinical parameters such as heart rate, rectal temperature and respiratory rate of all animals (which were within the physiological limits throughout the observation period) that these surgical wounds were free from infection. Also, the authors had not opted for microbiological analysis, which indicates that wounds in all animals were free from infection.

Infection is one of the leading causes of non-healing of wounds in addition to ischaemia and repeated trauma. This important issue of infection has not been taken into consideration and is not addressed in this study. Although the role of bone marrow cells is proved beyond doubt in the wound healing process, especially in the formation of fibroblasts and keratocytes (2−4), it would be interesting to study their effect in healing process of infected wounds, without antibiotic treatment. It would also be interesting to find out whether this therapy of using bone marrow nucleated cells will help achieve accelerated rate of wound healing in infected and ischaemic wounds in the absence of antibiotic cover.

Basavraj S Nagoba, PhD1 & Sohan P Selkar, MPhT2
1Research & Development, Department of Microbiology, MIMSR Medical College, Latur 413 531 (M.S.), India
2Department of Physiotherapy, MIP College of Physiotherapy, Latur, India

References