

Autologous leuco-platelet preparation promotes neoangiogenesis and wound healing

Gabriella Azzara¹, Cristina Cannizzaro¹, Mariangela Corsi¹, Serafino Ricci², Bruno Salvati³, Raffaele Capoano³ and Rita Businaro¹

¹ Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome, 04100 Latina, Italy

² Department of Anatomy, Histology, Forensics Medicine and Orthopedics, Sapienza University of Rome, 00161 Rome, Italy

³ Department of Surgical Sciences, Sapienza University of Rome, 00161 Rome, Italy

The rationale of our study was to test the potential of the autologous elements of peripheral white blood cells and platelets to promote neoangiogenesis, thereby overcoming hypoxemia, the major obstacle to the regeneration of the tissue.

An highly innovative technique, based on an autologous leuco-platelet preparation, applied by direct infiltration to the ulcer was employed to treat 65 patients with ulcers of different etiologies. Hyaluronic acid was used as a scaffold, supplemented with autologous cells. Patients were followed up until complete healing of the lesions. Morphometric analysis was performed on histologic sections to determine the presence of neoangiogenesis.

The wound healing was obtained in all cases after 2 until 22 months with this treatment (median time is 11.4 months). More than half of the patients recovered completely within the first 12 months. Morphometric analysis on histologic sections determined the presence of an abundant neovasculature in the close proximity of the infiltrations of leuco-platelet concentrate.

Our data show that autologous leucoplatelet preparation layered onto ischemic ulcers may improve neoangiogenesis leading to wound healing. These findings suggest that this cell-based therapy may be a useful tool for the treatment for intractable skin ulcers resulting from diabetes, ischemia and collagen diseases.

References

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Key words

Neoangiogenesis, wound healing, immunohistochemistry, morphometry.