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Regenerative surgery for the definitive repair of chronic ulcers: A series of 34 cases treated with platelet-derived growth factors

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Background: Regenerative surgery is a relatively new branch born based on the employment of either stem cells and/or biological products (Platelet Rich Plasma or its gel formulation Platelet Gel) which induce stem cells migration to the damaged tissues, stimulating their proliferation and eventually obtaining tissue repair.

Methods and Results: Thirty-four patients (aged 25-88 years) with chronic non-healing ulcers (14 pressure, 7 vascular, 7 post-operative and 6 post-traumatic ulcers) were treated consecutively with autologous (n=22) or homologous (n=12) platelet gel. All patients suffered from the ulcer for at least 6 months (range 6-96 months). Complete healing of all ulcers was obtained in 10-240 days after a variable number of platelet gel applications (range 1-6). Pearson correlation was adopted to verify if statistically significant correlation existed between 1) time from diagnosis and time of healing, 2) ulcer's size and time from diagnosis and 3) ulcer's size and time of healing. Correlation between ulcer's size and time of healing was the only statistically significant.

Discussion and Conclusions: As expected, a significant correlation between ulcer's size and time of healing existed. Notably, time of healing did not depend on time from diagnosis, probably meaning that once the regeneration process is triggered, it is not important for how long patients suffered from the ulcer, but only how much tissue needed to be regenerated. Definitive repair was obtained for all ulcers, suggesting that this new approach may represent an useful alternative to current techniques for the treatment of chronic ulcers.

Biography

Marco Scala, surgeon at the Surgical Oncology Division of the IST (National Cancer Institute) of Genoa in charge of the Regenerative Surgery Department. In 2000, Dr Scala has been in the USA at the Memorial Sloan Kettering Cancer Center of New-York for training completion on Head & Neck surgery and has been trained on platelet gel use for bone regeneration at the Dr Alan Meltzer's office in Voorhees, New Jersey, before moving to hPL. The principle area's of research work are the following: Regenerative Medicine and Tissue Engineering, Innovative Oncological Therapies, Cryosurgery, Foto Dynamic Therapy, Electrochemoporation therapy, Innovative therapies for chronic wound healing, Guided Bone Regeneration in Oro-Maxillo-Facial Surgery and Surgical Oncology. He has dedicated many years of his professional career studying and devising new and innovative methods for tissue regeneration using stem cells, bio-materials and growth factors. He has been invited to speak at many international medical conventions and meetings and he is also very proudly the author of more than 100 publications in national and international scientific journals. Prof. Scala is also co-inventor of Regenerative Tissue with Growth Factors Platelet derived patent.

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