

Tissue Engineering 2017: Tissue regeneration in wound: Possibility to reality_SandeepShrivastava_DattaMeghe Institute of Medical Sciences_India

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Background & Introduction: The management of wounds has been a huge challenge for all health care providers, particularly those which are complex in nature and associated with exposed bones, tendons, implants, infections etc. The primary occurrence of open injuries in fractures tend to modify the management protocols and delays the union strategies. Association of infection is catastrophic, and no surgeon wants it to happen. Similarly, the necrosis of surgical flaps leading to exposure of implants and underlying bones is a worse scenario, specially after a well-intended and performed surgeries. This work is dedicated to evolve a solution which can lead to predictable wound healing in all such cases with minimum of surgical intervention; drugs such antibiotics and analgesics; and simplified local care. The author have developed a technique, which is based on management of wounds with Platelet Rich Plasma and intend to share and present his work on the same in this Oration. **Material & Methodology:** At the Dept. of Orthopaedics, J.N.Medical College, Wardha working at Rural tertiary care centre, the Project PRP_ Biotechnological Intervention was started in 2012 and after 5 years of different observations of usage of PRP in wounds, we developed a technique now called as “STARS Technique” - “Sandeep’s technique for Assisted Regeneration of Skin”. This involves use of autologous PRP as the Mono-therapy and mainstay treatment for almost all wounds including the above described complex wounds. Its basically infiltration of PRP followed by Moist Saline dressings. A pilot case based prospective interventional study involving 170 Patients is now completed. **Observations & Results:** The data generated is recorded in the form of Photographs of each Patients till the wound have healed completely or near completion of treatment. It is analysed towards wound healing, control of infection and final outcomes. Further this data is matched with Laboratory data generated towards culture from wounds, Patient Platelet & Haemogram profiles etc, so that safety of technique is studied. Based on the observations of wound healing - Stages and Pattern of assisted healing has also been identified and studied. The results are excellent with complete control of infections, a predictable healing in almost all cases including bed sores, diabetic sores, complex wounds involving bones, tendons and near necrotic flaps and tissues. The results in the last group of near necrosis / gangrenous situation is a quantum jump in the history of mankind, where in reversal/ restriction of damage has been achieved perhaps for the first time, restricting the morbidity to the minimum. We have been able to salvage limbs which were

referred for amputations. **Result & Conclusion:** The emergence of a new modalities based on Regenerative Medicine is predicted to change the managements of health problems. Inclusions of Stem cells, Mesenchymal Stem cells or Platelet in treatment protocol for complex problems will probably give current outcomes a flip. The regeneration as a tool for healing is going to be very powerful options, and have all potentials to be the mainstay treatment, moving ahead from concept of Drugs, Devices and Dressings. The main restriction for their clinical applications is accessibility; cost and still some ethical issues, particularly for Stem cells. Platelet as a regenerative product, easily overcome all these reservations. But few things about PRP usage are still unclear in current literature. This study and its results, takes a leading stride in forwarding this march of Regenerative Medicine into the clinical practices and building solution for problems which were referred to as difficult to solve or incurable. Through this study we again reemphasise, that its important to build clinical solutions focussed on breakthrough researches happening in the laboratory, and develop them in a mode and manner, where they can remain relevant to all stake holders including Medical doctors; other health care providers and Patients; particularly in terms of Applicability, Replicability/Reproducibility and Affordability.