

P006 Impact of platelet rich plasma and adipose stem cells on lymphangiogenesis in a murine tail lymphedema model
Maximilian Ackermann¹, Christopher Senaldi², Wassim Raffoul³, Moritz A. Konerding¹ and Paolo Erba²
¹University Medical Center of the Johannes Gutenberg-University Mainz, Mainz, Germany
²University Hospital of Lausanne (CHUV), Lausanne, Switzerland
³Department of Plastic Surgery, Lausanne, Switzerland

Lymphedema is a frequently underdiagnosed pathology which in well developed countries mainly affects cancer patients necessitating lymph node dissection surgery and/or radiation. Currently no effective therapy is available so that patients' life quality is compromised by swellings of the hidden extremities. This unfortunate condition is associated with body imbalance and subsequent osteochondral deformations and impaired function as well as with an increased risk of potentially life threatening soft tissue infections.

The effects of Platelet-Rich Plasma (PRP) and Adipose Stem Cells (ASC) on angiogenesis (anti-CD31 staining), microcirculation (Laser Doppler Imaging), lymphangiogenesis (anti-LYVE1 staining), microvascular architecture (microvascular corrosion casting) and wound healing (digital planimetry) are studied in a murine tail lymphedema model.

Wounds treated by PRP and ASC healed faster and showed a significantly increased epithelialization mainly from the proximal wound margin. The application of PRP induced a significantly increased lymphangiogenesis while the application of ASC did not induce any significant change in this regard.

Conclusions: Platelet Rich Plasma (PRP) and Adipose Stem Cells (ASC) represent a promising approach to improve regeneration of lymphatic vessels, restore disrupted lymphatic circulation and treat or prevent lymphedema alone or potentially in combination with currently available lymphedema therapies.