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Regenerative Medicine - from Protocol to Patient

5. Regenerative Therapies II

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Today it could be shown that EPO and EPO receptors are produced in the skin, where the typical cell protective effects could be demonstrated. The same has been examined for hair follicles; here a protective effect against chemotherapy-induced apoptosis of hair follicle cells could be revealed (Bodó et al. 2007).

Unfortunately all clinical trials (known to the authors) investigating rhEPO as a pleiothrop, pro-regenerative treatment after traumata, like burn wounds, myocardial infarction or stroke did miss the primary endpoints or reveal inconclusive results. There exists an enormous discrepancy between the very promising results of a large number of pre-clinical investigations and the so far generated clinical experience. So far no scientific proof arguments could be found but one very likely explanation is the difference between the young and healthy, very standardized animal models and the multimorbid, elderly patients treated in most of the clinical trials.

12.4.2 Hypoxia Preconditioned Plasma

Autologous hypoxia preconditioned plasma is an innovative approach mimicking the bodies own regenerative mechanisms. As many clinical trials examining only a single growth factor have failed to prove its efficacy in the clinical setting, this approach uses the bodies own regenerative cocktail. Therefore the patient's blood is preconditioned ex-vivo under hypoxic conditions an applied back onto for example a chronic wound. Here it triggers a pro-regenerative and a pro-angiogenetic stimulus, which enables the chronic wound to heal. Pre-clinical studies have shown excellent results. A proof of concept clinical trial is to be started soon (Hadjipanayi and Silling 2013, 2014).