
Abstract: Tendon tissue shows limited regeneration potential with formation of scar tissue and inferior mechanical properties. The capacity of several growth factors to improve the healing response and decrease scar formation is described in different preclinical studies. Besides the application of isolated growth factors, current research focuses on two further strategies to improve the healing response in tendon injuries: platelet rich plasma (PRP) and mesenchymal stem cells (MSCs). The present review focuses on these two options and describes their potential to improve tendon healing. In vitro experiments and animal studies showed promising results for the use of PRP, however clinical controlled studies have shown a tendency of reduced pain related symptoms but no significant differences in overall clinical scores. On the other hand MSCs are not totally arrived in clinical use so that there is still a lack of randomized controlled trials. In basic research experiments they show an extraordinary paracrine activity, anti-inflammatory effect and the possibility to differentiate in tenocytes when different activating-factors are added. Preclinical studies have shown promising results in improving tendon remodeling but the comparability of current literature is difficult due to different compositions. PRP and MSCs can act as efficient growth factor vehicles, however further studies should be performed in order...
to adequate investigate their clinical benefits in different tendon pathologies.