Platelet rich fibrin matrix effects on skeletal muscle lesions: an experimental study.

Basic science (rat) study that shows better muscle healing with PRP injection. - Kelly Cunningham, MD

Abstract

Even though muscle injuries are very common, few scientific data on their effective treatment exist. Growth Factors (GFs) may have a role in accelerating muscle repair processes and a currently available strategy for their delivery into the lesion site is the use of autologous platelet-rich plasma (PRP). The present study is focused on the use of Platelet Rich Fibrin Matrix (PRFM), as a source of GFs. Bilateral muscular lesions were created on the longissimus dorsi muscle of Wistar rats. One side of the lesion was filled with a PRFM while the contralateral was left untreated (controls). Animals were sacrificed at 5, 10, 40 and 60 days from surgery. Histological, immunohistochemical and histomorphometric analyses were performed to evaluate muscle regeneration, neovascularization, fibrosis and inflammation. The presence of metaplasia zones, calcifications and heterotopic ossification were also assessed. PRFM treated muscles exhibited an improved muscular regeneration, an increase in neovascularization, and a slight reduction of fibrosis compared with controls. No differences were detected for inflammation. Metaplasia, ossification and heterotopic calcification were not detected. This preliminary morphological experimental study shows that PRFM use can improve muscle regeneration and long-term vascularization. Since autologous blood products are safe, PRFM may be a useful and handy product in clinical treatment of muscle injuries.

Authors: Gigante A1, Del Torto M, Manzotti S, Cianforlini M, Busilacchi A, Davidson PA, Greco F, Mattioli-Belmonte M.


Disclaimer: Austin Ortho+Biologics is not affiliated with the data, content, or conclusions of this article.