The role of platelets in liver regeneration – what don’t we know?

Ton Lisman
Marc Kirschbaum
Robert J. Porte

Published in Journal of Hepatol.
2015;63(6):1537-8
In an elegant review published in the Journal, Meyer and coworkers summarize current knowledge on the role of blood platelets in liver regeneration (1). Better insight in how platelets act in amplifying liver regeneration following a partial hepatectomy might have important clinical consequences. Currently, no strategies to enhance liver regeneration to treat or avoid the ‘small for size syndrome’ are clinically available. Platelets are an unexpected, but interesting new target for clinical intervention aimed at accelerating liver regeneration. Given the vast clinical experience with platelet-modulating drugs in treatment of platelet-associated bleeding disorders or arterial thrombosis, implementation of platelet-targeted therapy for stimulation of liver regeneration is a realistic scenario. Nevertheless, many questions of the mechanism by which platelets promote liver regeneration remain unsolved.

In their review, Meyer and coworkers combine knowledge obtained from in vivo studies on liver regeneration after partial hepatectomy and in vitro models or RNA transfer also occurs during liver regeneration in vivo. We fully agree with Meyer and coworkers that we need to expand our knowledge on mechanisms of platelet-mediated liver regeneration. In designing future experiments we should acknowledge that we are as yet unsure whether factors secreted by platelets (proteins or RNA) are relevant for platelet-mediated liver regeneration or that other properties of platelets drive liver regeneration. We should take effort to design rigorous in vivo studies to validate data obtained in cell culture models. Finally, we should realize that the mechanism of platelet-mediated liver regeneration may be different in the various clinical scenarios in which liver regeneration occurs. Therapies aimed at simulation of liver regeneration are not only relevant in the context of a partial hepatectomy, but also in settings of acute liver failure, ischemia-reperfusion injury, and liver fibrosis. Future research should focus on the mechanisms of platelet-mediated liver regeneration in these distinct contexts.
CHAPTER 2

The role of platelets in liver regeneration – what don’t we know?

References


