

Hepatic stem/progenitor cell activation differs between primary sclerosing and primary biliary cholangitis

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The activation of hepatic stem/progenitor cells (HPCs) is characterized by the appearance of ductular reaction (DR) in the liver parenchyma [1]. The aims of the present study were to evaluate the activation of HPCs in human cholangiopathies. Human liver tissue was obtained from liver donors (N=5), Primary Sclerosing Cholangitis (PSC; N=20), and Primary Biliary Cholangitis (PBC; N=20) patients. Ductular reaction extension was evaluated by Keratin(K) 7 immunoreactivity. HPC phenotype and signalling pathways were investigated by immunohistochemistry and immunofluorescence [2]. Ductular reaction in PBC is more extensive, appears earlier, and has a higher proliferation index compared to PSC. In PBC the extension of DR strongly correlates with clinical prognostic scores. A higher percentage of Sox9+ and K19+ cells characterized DR in PBC versus PSC. In cirrhotic-PSC, the HPC compartment showed signs of hepatocyte commitment. The study of the HPC niche indicated lower levels of laminin and NOTCH1 but higher expression of WNT pathway components in PSC compared to PBC. In conclusion, PSC and PBC are characterized by different patterns of HPC niche activation, reflecting the involvement of different portions of the biliary tree as primary target of damage. These aspects could have implications in the pathogenesis of cholangiopathies and could add prognostic value.

References

- [1] Carpino et al. (2016) Stem/Progenitor Cell Niches Involved in Hepatic and Biliary Regeneration. *Stem Cells Int* 2016: 3658013.
- [2] Carpino et al. (2015) Activation of biliary tree stem cells within peribiliary glands in primary sclerosing cholangitis *J Hepatol* 63: 1220-1228.

Keywords

Stem cell, liver, biliary tree, cholangiopathies, regeneration, signalling