Highlight report: liver to bone communication

Hassan Ahmed¹ · Mohamed S. Ahmed² · Alsagher O. Ali³ · Seddik Hammad^{4,5}

Received: 1 July 2019 / Accepted: 4 July 2019 / Published online: 9 July 2019
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Recently, Sabrina Ehnert and colleagues from Tuebingen University (Germany) published a comprehensive review about hepatic osteodystrophy (Ehnert et al. 2019). Currently, numerous studies focus on a better understanding of liver disease (Jansen et al. 2017; Vartak et al. 2016; Nussler et al. 2014; Hammad et al. 2018) and mechanisms of hepatotoxicity (Grinberg et al. 2014, 2018; Schenk et al. 2017; Godoy et al. 2013, 2015, 2016; Hammad et al. 2017, 2018; Kodidela et al. 2017; Leist et al. 2017). However, relatively little is known how disturbed liver functions influence other organs. The majority of patients with chronic liver diseases suffer from hepatic osteodystrophy (Nakchbandi and van der Merwe 2009; Diamond et al. 1990; Wibaux et al. 2011; Tsai et al. 2013; Nussler et al. 2014). Hepatic osteodystrophy increases the risk of bone fractures which are difficult to treat and affect the long-term prognosis of patients (Angulo et al. 2011; Gunañabens et al. 2010; Guarino et al. 2016; Goel and Kar 2010). In the present review, Ehnert and colleagues

summarize and discuss current knowledge of the molecular mechanisms responsible for hepatic osteodystrophy:

- Compromised vitamin D metabolism.
- Alterations in transforming growth factor beta (TGF- β)-induced effects.
- Compromised bone morphogenetic protein (BMP) signaling.
- Altered expression of histone deacetylases (HDACs).
- Functional loss mutations of sclerostin.

Based on these mechanisms, the authors discuss therapeutic perspectives and possibilities or early diagnosis. The article is a must-read for anyone interested in the mechanisms how liver diseases compromise bone metabolism.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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✉ Seddik Hammad
seddik.hammad@vet.svu.edu.eg;
seddik.hammad@medma.uni-heidelberg.de

Hassan Ahmed
hassan-younes@vet.svu.edu.eg

Mohamed S. Ahmed
m.s.ahmed@vet.svu.edu.eg

Alsagher O. Ali
Alsagher.ali@vet.svu.edu.eg

¹ Department of Physiology, Faculty of Veterinary Medicine, South Valley University, Qena 83523, Egypt

² Department of Poultry Diseases, Faculty of Veterinary Medicine, South Valley University, Qena 83523, Egypt

³ Department of Animal Medicine, Faculty of Veterinary Medicine, South Valley University, Qena 83523, Egypt

⁴ Department of Forensic Medicine and Veterinary Toxicology, Faculty of Veterinary Medicine, South Valley University, Qena 83523, Egypt

⁵ Molecular Hepatology Section, Department of Medicine II, Medical Faculty Mannheim, Heidelberg University, 68167 Mannheim, Germany

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