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Crosstalk between the liver and heart: revisited for prevention and treatment

A growing body of evidence suggests that many cardiovascular disorders, including heart failure, can unfavourably affect liver function and create a vicious cycle between the liver and heart.[1] This bidirectional crosstalk between the liver and heart appears to be associated with complicated trans-organ haemodynamic, endocrine, and metabolic abnormalities. Cardiohepatic syndrome is characterized by predominant cholestatic damage with rising alkaline phosphatase and bilirubin levels, whereas decompensated heart failure and cardiogenic shock are associated with a predominant rise in transaminase levels.[1] Moreover, liver function tests exhibit different patterns of abnormalities between left ventricular diastolic and systolic dysfunction in patients with heart failure.[1] Thus, liver function can reflect the pathophysiologic condition underlying the crosstalk. To date, studies involving treatment strategies for the liver–heart axis and heart failure care have been limited.

In a recent issue of the sister journal, Suzuki et al.[2] reported the impact of liver function, especially the total bilirubin level, on prognosis and the beneficial effect of sacubitril/valsartan on those parameters in patients with heart failure and a reduced ejection fraction (HFrEF) independent of baseline liver function. Their findings in the PARADIGM-HF trial suggested that a favourable impact on modest liver function abnormalities is one of the mechanisms underlying the sacubitril/valsartan effect in patients with HFrEF. Furthermore, sacubitril/valsartan may be effective against cardiohepatic syndrome and some liver diseases, although patients with overt hepatic dysfunction would be excluded from the trial.

Non-alcoholic fatty liver disease (NAFLD) is characterized by a high prevalence of cardiovascular morbidity/mortality, including heart failure, and liver fibrosis is the most important predictor of mortality in patients with NAFLD.[3] Given the present effect of sacubitril/valsartan on liver function, some markers of fibrosis, such as the fibrosis-4 index, may help assess the effect of sacubitril/valsartan on liver fibrosis. To better understand the effect of sacubitril/valsartan on the crosstalk, the authors may consider clarifying the detailed relationship between changes in liver function and prognosis of the patients enrolled in the PARADIGM-HF trial.

Finally, as Packer pointed out,[4] NAFLD is closely associated with a systemic pro-inflammatory state and inflamed pericardial adipose tissue accumulation, leading to cardiac remodelling and development of heart failure with a preserved ejection fraction (HFpEF). Therefore, whether sacubitril/valsartan has a similar effect on measures of liver function in patients with HFpEF,[5] as in HFrEF, is warranted to determine the therapeutic potential of sacubitril/valsartan on crosstalk.

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Conflict of interest

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