

Current Concepts in the Diagnosis and Classification of Renal Dysfunction in Cirrhosis

A.L. Mindikoglu, M.R. Weir

Am J Nephrol 2013;38:345–354

DOI:10.1159/000355540

Commentary

By Professor Richard Glassock

Advanced liver disease with hepatic cirrhosis (alcoholic, viral or cryptogenic) is commonly accompanied by renal dysfunction. The origins of such renal dysfunction vary widely. In many circumstances the abnormalities in renal function can be attributed to volume depletion (pre-renal azotemia), to nephrotoxins, sepsis, hemorrhagic shock, urinary tract obstruction or to underlying acute or chronic glomerular, vascular or tubulo-interstitial diseases of the kidney. However, most such subjects have the kidney dysfunction traceable directly to the liver disease itself (Hepato-Renal Syndrome; HRS, type I or II). The differential diagnosis of renal dysfunction can be difficult, especially since estimates of glomerular filtration rate (eGFR) by commonly used equation can be confounded by errors. Mindikoglu and Weir comprehensively review the current status of the diagnosis and classification of renal dysfunction in cirrhosis, including its pitfalls and controversies, and offer a fresh approach to its classification. Fundamentally, this new classification adds weight to the changes in renal plasma flow (RPF) and filtration fraction (FF) and stages the severity of dysfunction into 5 dynamic categories (stage 0-4) based on the nature and severity of the changes in GFR, RPF and FF in subjects with and without preceding acute or chronic kidney disease. A new concept of 'Pre-HRS' is introduced, where the GFR is normal or only slightly reduced, but the RPF is decreased and the FF

is increased. This circumstance must be differentiated from volume depletion by additional studies. HRS, type I or II, display both reduced RPF and GFR, but variable FF. Unfortunately, the tools to accurately estimate GFR in cirrhosis are lacking, as all of the formulas using biomarkers (creatinine and cystatin C) have not been well validated in patients with advanced liver disease, and direct measurement of RPF can be laborious and time-consuming, making estimates of FF in clinical practice unreliable. Nevertheless, this new classification system might have value as a research tool, to help in the search for new biomarkers of GFR and RPF that are accurate and accessible in subjects with advanced liver disease accompanied by renal dysfunction. At the present time, existing classification criteria (such as the Acute Kidney Injury Network criteria and HRS type I and type II) seem to have more clinical utility, but this review highlights the many shortcomings and knowledge gaps that exist in the important arena of clinical medicine.

Follow and participate in the discussion of this article