



Concise Commentary: Staying True to Type—The Increasing Inpatient Burden of Hepatic Encephalopathy

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Hepatic encephalopathy (HE) is a serious complication of acute and chronic liver diseases that is a consequence of impaired liver function and/or portosystemic shunting. HE can manifest as a broad spectrum of neurological and psychiatric disorders, ranging from alterations of mood and sleep patterns to neuromuscular symptoms such as asterixis and ataxia to hepatic coma. The classification of HE is based on the type of underlying liver disease: Type A—acute liver failure; Type B—portosystemic bypass/shunting without intrinsic liver disease; and Type C—chronic liver disease or cirrhosis. HE is also classified based on the severity of its manifestations (overt vs. minimal HE), its time course, and on the presence of any precipitating factors [1]. The development of overt neurological complications is associated with a poor prognosis, often signifying hepatic decompensation and the need for liver transplantation [2, 3].

With the increased incidence of many forms of liver disease in recent years combined with a more stringently defined classification system and more sensitive methods to detect HE, there has been a corresponding increase in the reported incidence of HE [2, 4]. As a result, assessment of the financial and social burdens placed on families and healthcare systems is important in order to better understand the socioeconomic impact of liver diseases and their complications. Furthermore, studies published to date assessing the healthcare costs of HE have not evaluated whether there may be differences in the cost of management of HE that vary according to the etiology of the underlying liver disease.

In this issue of *Digestive Diseases and Sciences*, Hirode et al. [5] performed an important and thorough assessment of the trends in clinical and economic burden of HE in hospitalized patients in the USA from 2010 to 2014. More specifically, the authors used the 2010–2014 National Inpatient Sample database in order to identify patients with a diagnosis of HE, assessing annual trends of hospitalization, in-hospital mortality, and hospital charges stratified by the presence of acute liver failure (Type A) or by cirrhosis (Type C). The central findings of this study were that among the 142,860 hospitalizations with HE, the majority could be classified as Type C HE (with the presence of cirrhosis) and only 3.9% being from patients with acute liver failure. Over the 5-year window analyzed by this study, the total number of hospitalizations increased by 24.4% without alteration of the proportion of Type A versus Type C encephalopathy. Total in-hospital charges for management of HE increased by 46% over the 5-year window, correlating with a decrease in overall in-hospital mortality. Interestingly, the authors found, using a multivariable analysis, that the in-hospital mortality and costs associated with treatment were significantly higher in patients with acute liver failure compared with liver cirrhosis.

This publication highlights a worrying trend of increasing rates of hospitalization and an increasing economic burden incurred by the inpatient treatment and management of HE. The study is the first to stratify the relative burden of Type A versus Type C encephalopathy and indicates that while HE due to acute liver failure may be more economically burdensome and more difficult to treat, it represents a minority of the overall cases of encephalopathy that are predominantly due to cirrhosis. Further analysis of the in-hospital costs of treatment due to each type of chronic liver disease is limited by the reliability and quantity of the data available in some cases in the National Inpatient Sample database, but could be an interesting topic of further study.

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