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LETTERS TO THE EDITOR

Is MELD score failing patients with liver disease and hepatorenal syndrome?

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Abstract

There is a need to reassess the application of MELD and the impact of renal insufficiency with consideration for developing an algorithm with exception points that would lead to timely allocation of livers to patients with hepatorenal syndrome prior to occurrence of permanent renal damage without jeopardizing post-transplant survival.

Key words: MELD; Hepatorenal syndrome; Cirrhosis; Graft survival; Liver allocation

Core tip: The decompensation of patients with cirrhosis is associated with the development of hepatorenal syndrome (HRS) and renal insufficiency. There are several consequences of a high serum creatinine level in cirrhotic patients, including increased post - liver transplant mortality and increased risk of non-reversal of renal insufficiency/renal failure. We propose a change to the MELD scoring that would lead to timely liver transplantation in patients with HRS.

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TO THE EDITOR

The decompensation of patients with cirrhosis is associated with the development of complications. This physiology can lead to renal hypoperfusion which contributes to the development of hepatorenal syndrome (HRS) and renal insufficiency[1,2]. It is rare to develop HRS with well-compensated liver disease.

There are several consequences of a high serum creatinine level in cirrhotic patients.

Serum creatinine is one of the most important independent predictors of waitlist and post-liver transplant (LT) mortality. While having the same MELD score, patients with higher serum creatinine level have a significantly higher mortality rate[3]. Analysis of the Scientific Registry of Transplant Recipients database linked with Centers for Medicare and Medicaid Services' end-stage renal disease (ESRD) data by Sharma *et al*[4] demonstrated that post-LT ESRD is associated with higher post-LT mortality (HR = 3.32; $P < 0.0001$).

Serum creatinine prior to liver transplantation is one of the most significant predictors of post-liver transplantation ESRD[5]. Wong *et al*[6] recently demonstrated that the only predictor of type 1 HRS non-reversal was the duration of pre-transplant dialysis with a 6% increased risk of non-reversal with each additional day of dialysis. Prolonged ischemic physiology may lead to structural renal damage and thus, prevent renal recovery. This has led many to consider combined liver-kidney transplantation (CLKT) for patients whose HRS has lasted longer than 6 wk because the outcomes for patients who receive CLKT seem to be better than those of patients who receive a liver transplant alone[7,8]. Since the introduction of MELD score, the number of patients treated with CLKT has increased markedly[9]. Almost 1000 kidneys a year are used in a combined transplantation, thus, diminishing the donor pool for patients on the kidney list.

It has also been shown that patients with renal insufficiency have longer hospital and intensive care unit stays and an increased need for dialysis, which likely increases the cost of transplantation. It likely adds to already increased healthcare costs through additional dialysis cases, and increased hospitalization rates secondary to morbidities associated with ESRD[10].

While MELD score is the gold standard for predicting wait list mortality, a notable weakness for liver allocation lies in predicting post transplantation survival, particularly with renal insufficiency[11,12]. In addition to MELD, various scoring systems, including Child Pugh score, the risk, injury, failure, loss, end-stage kidney disease criteria, sequential organ failure assessment (SOFA) score, and the Chronic Liver Failure-SOFA score have been designed to predict outcomes in post liver transplant patients[13]. Without a timely liver transplant for patients with acute kidney injury, the patient mortality is shifting from the waitlist to the post-transplant period[14]. It is time for a conversation within the transplant community to reassess the application of MELD and the impact of renal insufficiency with consideration for developing an algorithm with exception points that would lead to timely allocation of livers to patients with HRS prior to occurrence of permanent renal damage without jeopardizing post-transplant survival.

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