

Letter to the editor: The consideration of heart rate complexity as a co-morbidity factor for liver transplantation selection procedures

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The recent article published covering “The role of autonomic dysfunction in predicting 1-year mortality after liver transplantation” (1) provides some useful insight into post-transplantation survival. However, it seems to us that the data lend themselves to a different interpretation, possibly pointing to a new application of heart rate variability analysis in patients awaiting liver transplantation.

Based on the data presented in the study, the combination of the MELD score and measures of heart rate dynamics improves the accuracy in predicting mortality 1-year post-transplantation. However, this may have been misinterpreted as a novel index for organ allocation in patients awaiting liver transplantation. In contrast, we suggest that the measures of heart rate dynamics should instead be used as a separate co-morbidity factor to assess suitability for transplantation. This is because, as the study results show, heart rate dynamics behave differently to how renal and liver function behave following transplantation (Table 1, reference (1)). Measures of heart rate dynamics are unchanged, while liver and renal function improve after transplantation (2). Although both MELD score and measures of heart rate dynamics predict mortality post transplantation, it is important to note that heart rate complexity and deceleration capacity are stagnant following transplantation. This suggests that there is no significant improvement in cardiac autonomic function 1-year post transplantation. Previous studies confirm this finding showing that aspects of autonomic dysfunction 1-year post-transplantation do not improve in patients with cirrhosis (3). Thus, combining heart rate dynamics with MELD score for organ allocation would be equivalent to combining MELD score with a co-morbidity factor (e.g. severe cardiopulmonary disease or extrahepatic malignancy). Although the integrated score may predict post transplantation mortality better than MELD score alone, it will certainly not help identifying the most suitable candidates for liver transplantation.

Cardiac dysfunction also plays an increasingly important role in post-transplantation mortality (4). Perhaps the predictive ability of heart rate dynamics observed in the study by Chan et al. relates to the fact that patients were categorised into sub-groups with varying

cardiac autonomic function, measured by a reduction in heart rate complexity (1). Thus, this heart rate complexity index could be used as a pre-transplant screening tool to identify individuals at high risk of a post-transplant death, rather than in combination with MELD for organ allocation purposes.

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Conflict of Interest:

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