***Curve* your enthusiasm - the decision to use expanded or original Baveno VI criteria to exclude high-risk varices**

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We read with great interest the systematic review and meta-analysis by Stafylidou, Paschos and colleagues[1] published recently in Clinical Gastroenterology and Hepatology, which investigated the performance of the Baveno VI criteria (B6C) and expanded Baveno VI criteria (EB6C) for excluding high risk varices (HRVs). The authors pragmatically summarised the results of the meta-analysis in a hypothetical cohort of 1000 patients with compensated advanced chronic liver disease with 20% prevalence of HRVs. Using the B6C resulted in 262 endoscopies avoided but at the cost of 6 patients with HRVs being missed, compared to the EB6C which spared 428 endoscopies but missed 20 patients with HRVs. This highlights a dilemma where spared endoscopies must be reconciled against missing HRVs to decide which criteria should be adopted in the clinical setting.

Decision curve analysis is one method that can quantify this "trade off" between false negative diagnoses (HRVs missed) and false positive diagnoses (unnecessary endoscopies) using the concept of net benefit. Net benefit compares the harms and benefits of a test by multiplying the harm by a threshold probability so that it is placed on the same scale as benefit[2]. We have recently used decision curve analysis to define minimum accuracy criteria for non-invasive testing in cirrhosis and compare existing testing strategies[3]. We have also demonstrated the use of decision curve analysis in evaluating referral pathways for non-alcoholic fatty liver disease[4]. Furthermore, decision curves have been used in other settings to compare diagnostic strategies[5].

We have therefore constructed a decision curve for the hypothetical cohort of compensated advanced chronic liver disease patients described above (Figure 1). Here, B6C and EB6C are compared to the reference curves of an "endoscope none" strategy with no net benefit and an "endoscope all" strategy. The point where the reference curves intersect is the prevalence of HRVs. Threshold probability (P_t) refers to the chance of correctly finding HRVs that a patient or clinician is willing to accept to undergo or perform an endoscopy. For example, if a clinician is willing to perform 10 endoscopies to diagnose a single case of HRV then the P_t is 0.1.

The decision curve demonstrates that for P_t of 0.1 to 0.3, the EB6C has greater net benefit. This implies that if a clinician is willing to perform between 3 and 10 endoscopies for a single diagnosis of HRV, then EB6C has more net benefit and should be adopted. If a clinician is willing to perform more than 10 endoscopies, then B6C has the greater net benefit, whereas if less than 3 endoscopies are considered acceptable then there is no net benefit to either strategy. P_t can be individualised as the acceptable number of endoscopies for clinician may be influenced by factors such as cost, access to endoscopy or procedure-related

complications. Alternatively, P_t can be determined from the patient perspective as factors such as invasiveness, loss of productivity or opportunity costs may influence the willingness to undergo endoscopy.

In conclusion, the meta-analysis by Stafylidou, Paschos et al. comprehensively summarises the data to date for B6C and EB6C in excluding HRVs. Decision curve analysis allows easy assessment of the clinical utility of the findings. Without curbing the enthusiasm for the original B6C, our decision curve analysis suggests that the EB6C is the better strategy across the majority of clinically relevant threshold probabilities and should be adopted in clinical practice.

Figure 1: Decision Curve Analysis for Baveno VI criteria and expanded Baveno VI criteria for excluding high risk varices

References

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