# Response to 'Comparison of Transesophageal Echocardiography Probe as Surface Probe with Vascular Probe During Right Internal Jugular Vein Catheterization in Cardiac Surgeries'

## Dear Editor,

We recently read the article authored by Antony *et al.*,<sup>[1]</sup> published in your esteemed journal, and found it of great interest. The authors have done a commendable job conducting the research and meticulously drafting the article. However, while reviewing the manuscript, we identified some concerns that we would like to highlight.

Firstly, the authors compared a transesophageal echocardiography (TEE) probe used as a surface probe with a linear probe for internal jugular venous (IJV) cannulation. However, the rationale for conducting this study is not clearly highlighted, and we are unclear on the need for the study. The authors suggest that TEE adds an additional level of safety by confirming the accurate positioning of a guidewire in the heart. We disagree with this assertion, as the linear probe allows for clear visualization of the guidewire entering the brachiocephalic vein, and the agitated saline method is a reliable means of confirming the correct positioning of the central catheter.<sup>[2,3]</sup> Additionally, the authors cite a 25-year-old study conducted on children.<sup>[4]</sup> At that time, portable ultrasound machines, particularly hockey stick and small-footprint linear probes, were not as readily available as they are today. Furthermore, TEE probes is more expensive, and mishandling can lead to artefacts.

Secondly, the sample size calculation has not been elaborated upon, which is crucial for the reliability of the study's findings. We believe that a more detailed explanation of this aspect would have greatly enhanced the value of the research. The trial is described as observational; however, patients were clearly allocated to TEE (intervention), which is not standard practice without randomization. In studies comparing the ease of procedures between two devices, the lack of randomization raises serious doubts about the study's authenticity. Anatomically difficult cases were likely given usual care, while TEE was used in standard cases. Thirdly, the study contains multiple tables and figures that are not cited anywhere. Furthermore, the TEE probe has a 90-degree field of view, which means it must be placed at an angle. In IJV cannulation, an out-of-plane approach is used, where needle entry is parallel to the probe to facilitate the quickest cannulation. The authors also acknowledged that probe preparation was time-consuming and that the fit of the probe cover was poor.

Lastly, TEE probes typically have an operating frequency range of 3 to 7 MHz, while modern linear probes offer a frequency range of up to 18 MHz. In a superficial procedure like IJV cannulation, IJV and carotid artery often overlap in many patients, the higher resolution provided by higher frequency probes may help distinguish them as separate structures and avoid posterior wall puncture. The images provided by the authors reinforce our concern, as the resolution is very poor.

Furthermore, the operator's experience becomes important when using a TEE probe under suboptimal conditions. The statistically similar results obtained by experienced operators cannot be generalized to inexperienced ones.

To conclusion, we appreciate Antony *et al.*'s efforts; however, statistical similarity, we believe there is likely to be a significant clinical difference between the two techniques. Advocating for the general use of TEE in this context may be ethically questionable.

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Nil.

#### Conflicts of interest

There are no conflicts of interest.

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