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LETTER TO THE EDITOR

Transit Time Flowmeter Graft Flow Measurement in an Arrested Heart

To the Editor,

We would like to thank Dr Picichè for the interest and comments on our article [1]. Our Flowmeter Technique to Exclude Internal Mammary Artery Anastomosis Error in an Arrested Heart is fast and reproducible, and it does not need additional equipment, such as an ultrasound probe, for assessing the quality of anastomosis in an arrested heart [2]. We now routinely use this technique for all our arterial in situ grafts. In some of our cases after this initial study, we found that the initial reading was unsatisfactory with no obvious cause found upon undoing the anastomoses, but following re-anastomosis, a satisfactory reading was obtained. This highlights the importance of accurate measurement in an arrested heart, which can allow quick revision if initial reading is unsatisfactory. In some cases, there may be subtle mistakes that impair blood flow, which cannot be identified but simply be corrected with re-grafting without re-cross-clamping. We agree with Dr Picichè that this technique can be also used for a venous graft by connecting it to a cardioplegia line or by performing immediate proximal anastomosis and administering cardioplegia through the aortic root with flow measurement. We have performed this approach in several cases, but to date, we have not gathered sufficient data on a venous graft to recommend pulsatility index (PI) and flow that are acceptable for a venous graft. We speculate that the acceptable PI will be similar to that for an in situ arterial graft, but the flow will be higher.

Transit time flowmeter graft measurement is now the standard method for assessing a patent graft [3]. Our technique further increases the utility of the device. We hope that this technique will be widely used by other surgeons in other centres for both arterial and venous grafts. This will allow accumulation of more data for reaching a consensus on the acceptable PI and flow in an arrested heart.

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References

[1] Hashim SA, Amin MA, Nair A, Raja Mokhtar RA, Krishnasamy S, Cheng K. A flowmeter technique to exclude internal mammary artery anastomosis error in an arrested heart. Heart Lung Circ 2018;27(5):e59–63.

[2] Di Giammarco G, Canosa C, Foschi M, Rabozzi R, Marinelli D, Masuyama S, et al. Intraoperative graft verification in coronary surgery: increased diagnostic accuracy adding high-resolution epicardial ultrasonography to transit-time flow measurement. Eur J Cardiothorac Surg 2014;45:e41–5.

[3] Kolh P, Windecker S, Alfonso F, Collet JP, Cremer J, Falk V, et al. 2014 ESC/EACTS Guidelines on myocardial revascularization: the Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS). Developed with the special contribution of the European Association of Percutaneous Cardiovascular Interventions (EAPCI). Eur J Cardiothorac Surg 2014;46:517–92.

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