COMENTÁRIO EDITORIAL

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Vascular access complications in Extracorporeal Membrane Oxygenation: a joint effort of intensivists and vascular surgeons

The availability of extracorporeal membrane oxygenation (ECMO) has markedly increased in the last years. Veno-arterial ECMO (VA-ECMO) provides support to patients with critical but potentially reversible cardiopulmonary failure refractory to standard therapeutic modalities. The most common cannulation technique for adults requiring VA-ECMO is the percutaneous access of the femoral vessels because of their size and accessibility.[1-2] Complications related to femoral cannulation are frequent and may come along with a significantly lower survival.[2-4]

In this issue of *Revista da Sociedade Portuguesa de Cirurgia Cardiotorácica e Vascular*, Augusto R *et al*[5] provide a comprehensive retrospective cohort study on consecutive patients submitted to VA-ECMO in their centre during[7-8] years, focusing on the prevalence of cannulation-related complications, its determinants, and the effect on patient morbimortality. From 82 patients submitted to ECMO in the authors' centre, 61 received VA-ECMO and 52 had femoral arterial access. The reported rate of vascular events was 28.6%.

The paramount importance of this real-world data is to provide the grounds to address and decrease the VA-ECMO access complications as well as the potential subsequent morbimortality. This achievement requires a joint effort of intensivists and vascular surgeons:

(a) Peripheral arterial disease was associated with access complications in this study, regardless of suspected underreporting. Some authors recommend routine lower limb arterial assessment before ECMO implantation[5] whenever the cases are not emergent, where the risk of vascular complications cannot be minimized. The duplex ultrasonography is an unevaluable resource to achieve this goal, allowing the evaluation of atherosclerotic plaques and the arterial flow, but also providing puncture guidance.[6] The use of duplex ultrasonography to guide the puncture in percutaneous cases may help to identify the best arterial place to do the cannulation, avoiding erroneous puncture of the profundal or the superficial femoral arteries. Indeed, a recent meta-analysis shows that the use of real-time ultrasound guidance for femoral artery catheterization decreases life-threatening vascular complications and improves first-pass success rate.[8]

(b) Early involvement of vascular surgeons may also be required for open femoral exposure, for suturing a prosthetic graft to the common femoral artery with subsequent cannulation of the graft instead of the native artery[9] or in search and exposure of alternative access sites (subclavian or axillary artery) that might be considered for selected patients.

(c) Finally, the use of percutaneous suture – a technique increasingly used in many endovascular procedures, including those requiring large sheath sizes (up to 24 Fr) – might be of great interest[10-11] as it avoids open removal of the arterial cannula, saving time, resources and the need of an arterial open surgery.

A broad discussion of results with technicians from different departments in the cardiovascular field cannot be disregarded. It is how we can learn from each other's work.

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