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Letter to the Editor

Prehospital REBOA: Time to clearly define the relevant indications



Dear Editor,

We read with great interest the recently published study by Lendrum et al. on the first case series of civilian prehospital Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) for exsanguinating pelvic haemorrhage.¹ Although these results seem promising, we raise some concerns regarding the following points.

Firstly, we do not understand upon which criteria, especially haemodynamic ones, the authors decide to attempt REBOA. According to Table 1, some of the patients were seriously hypotensive, while others, like patient #11, had a systolic blood pressure (SBP) as expected in a well-conducted resuscitation (91 mmHg). Moreover, some patients for whom REBOA could not be performed (patients #14 and #19) nevertheless arrived alive at the hospital. Therefore, the challenge ahead is to clearly define which patient would be most likely to benefit from REBOA, and when, notably in countries in which a prehospital medicalization exists. Indeed, REBOA causes ischemia and is time-consuming in patients for whom it may be more important to arrive promptly at the trauma center. This is all the more important in a dense urban area like London, with its numerous trauma centers. We thus must define for which patients it is worth spending time on scene using REBOA rather than opting for the scoop and run strategy, especially as the authors report a large failure rate (6 out of 19 attempts, or 32%) when using REBOA. We have published a study on the putative number of patients who could benefit from REBOA in prehospital care.² In order to select severely injured patients, our criteria are a cardiopulmonary arrest or a SBP below 90 mmHg despite an epinephrine dose above 5 mg per hour. In order to establish a protocol, a refinement of these criteria would probably be desirable. The indication depends on several parameters, notably the patient's haemodynamic status (SBP threshold below 60 mmHg e.g.) and the time delay prior to the arrival at the trauma center. Thus, REBOA should be used as a prehospital rescue device when conventional resuscitation is not sufficient to prevent the patient's death. Moreover, partial and/or intermittent inflation should be considered to limit the ischemia caused by REBOA.

Secondly, in Lendrum's study, REBOA were used in zone 3. This zone is dedicated to the control of pelvic and junctional bleedings. For the latter (e.g. as caused by the stab wound of patient #16), the indication seems relevant. But in case of falls from a significant height or road accidents, as focused assessment with sonography for trauma (FAST) examination was not mentioned in the study, how could the LAA team have determined with certainty that the bleeding was only pelvic and not associated with abdominal bleeding? Answering this question

is of paramount importance when REBOA is used in prehospital care, and another team preferred using REBOA in zone 1.³

Conflict interest

All the authors of the letter do not have any conflict of interest to declare.

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