I read with great interest the article by He et al. [1]. In this valuable review, I think that there is yet another topic to be discussed. The authors stated that there are four therapeutic options in the setting of acute pulmonary embolism (PE), including heparin therapy, thrombolysis, catheter-based embolectomy and surgical embolectomy under cardiopulmonary bypass. However, they failed to include a valuable alternative in the management of moribund acute PE, that is extracorporeal membrane oxygenation (ECMO) support.

There have been occasional reports describing the use of ECMO in the management of acute PE. KOLVEKAR et al. [2] implanted a veno-arterial ECMO in 2 patients with massive PE. They were successfully weaned after 3–4 days and did not undergo surgical embolectomy; of note, these 2 patients remained non-intubated during the ECMO support. Others have advocated the use of ECMO to provide emergency support for unstable patients with massive PE until surgical embolectomy could be performed [3,4]. This is particularly correct in places where experienced and well-trained ECMO teams can expeditiously perform the mechanical support in critically ill patient or en route towards a centre that can offer surgical or catheter-based embolectomy.

Recently, the use of peripheral ECMO for massive PE as a definitive therapy with concomitant heparin infusion for high-risk surgical candidates has been reiterated in a study by Malekan et al. [5]. Three patients were weaned after 5.3 days of ECMO support with a near-complete lysis of the embolus on the computed tomography scan. They showed that ECMO can be an effective alternative to surgical embolectomy in this subset of inoperable patients. In contrast, the use of ECMO not as a bridge to surgery but as an ultimate therapeutic option has been criticized sharply for introducing additional risks of chronic pulmonary hypertension in patients experiencing massive PE. To date, only a handful of reports, most of which are isolated case reports and small clinical series, have described the use of ECMO in this patient population and long-term results regarding chronic pulmonary hypertension are lacking.

Despite advances in surgical techniques and excellent results following surgical embolectomy [6], open surgical intervention may not be the best option in patients with limited life expectancy, advanced debilitating disease or a combination of high surgical risk and a hostile reoperative mediastinal field. Early veno-arterial ECMO support has been shown to be effective in severely compromised patients with PE, even for patients undergoing prolonged cardiac resuscitation. It plays a major role as a rescue therapy in patients with severe compromise after severe PE, with or without subsequent surgical embolectomy.

REFERENCES