78% reoperations). Surgical technique included the use of a branched hybrid graft (Vascutek Thoraflex; Vascutek Ltd a Terumo Company, Inchinnan, UK) and noncardioplegic continuous myocardial blood perfusion during aortic arch repair (beating heart aortic arch surgery).⁷ Although patient characteristics were similar to the group treated between 2001 and 2013, operative mortality was 0% and the stroke rate was 0%. Reoperation for bleeding occurred in 6% (n = 1). This is a remarkable improvement relative to our initial experience with the FET technique in patients with chronic dissection. Nevertheless, the value of the FET approach in patients with chronic dissection has yet to be clarified. Renal failure requiring dialysis occurred in 22% (n = 4). As a consequence, we have started to use lower body perfusion during aortic arch repair on a routine basis through a catheter advanced antegradely into the descending aorta, which has a similar effect to femoral perfusion used by Kouchoukos. Temporary spinal cord injury occurred in 11% (n = 2), and both affected patients are ambulatory. Three patients (17%) underwent distal aortic treatment (1 with thoracic endovascular aortic repair, 1 with open thoracic aortic aneurysm repair, and 1 with open infrarenal repair) after 294 ± 69 days. Hence, distal extension was comparable to the classical ET technique.

It remains to be elucidated whether patients with chronic dissection are suitable candidates for FET repair. We believe that treatment of these patients has to be highly individualized. For chronic dissections not extending to the abdominal aorta, we recommend FET repair and secondary thoracic endovascular aortic repair (if needed) for most patients. The 1-stage extended surgical technique proposed by Kouchoukos theoretically would be an alternative in this situation; with our current results, however, we prefer a 2-stage approach that is based on elephant trunk or FET principles. We usually opt for an open second-stage repair in young and patients and those with Marfan syndrome.

As with most complex surgical procedures, outcome in aortic arch repair improves with case load and standardization. Our highly standardized technique can be used as a universal approach to patients at low risk as well as those at high risk (including those with acute DeBakey type I aortic dissections) with very good results. New organ protection methods (whole body perfusion including beating heart aortic arch repair) should further improve outcomes despite an aging patient population. Around 40 of these cases are performed each year in our clinic, and a number of foreign visiting surgeons have adopted the technique in their home institutions.

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EXTRACORPOREAL CARDIOPULMONARY RESUSCITATION FOR OUT-OF-HOSPITAL REFRACTORY CARDIAC ARREST: A WORD OF CAUTION

To the Editor:

We read with great pleasure Bednarczyk and Singal's recent editorial¹ on our article concerning the role of extracorporeal cardiopulmonary resuscitation (E-CPR) for the treatment of refractory cardiac arrest.² Outcomes assessment represents a key element in an institution's extracorporeal life support program because of the extreme complexity and variability of these patients. Prospective data collection for all extracorporeal life support recipients at our center has proved to be an effective tool to "make every variable count" in the effort of improving the practice and decision making. We thank Bednarczyk and Singal¹ for having emphasized the importance of late outcomes reporting in the most challenging subgroup, patients undergoing E-CPR. We completely agree about the opportunity to include systematically a description of long-term return to active life and social functioning of these patients after prolonged hospitalization in intensive care units.

As the evidence implies, E-CPR is a useful tool for highly selected patients with refractory cardiac arrest (36.7% survival rate in our 2005-2013 series).² In the population depicted, no more than 12% of the E-CPR recipients had suffered refractory out-of-hospital cardiac arrest (OHCA). This low figure was due to selection bias in accepting patients with OHCA for E-CPR. On the basis of

our results,² our institution subsequently decided to enlarge the indications to E-CPR to all patients with OHCA satisfying the following criteria: estimated no-flow of 3 minutes or less, witnessed cardiac arrest, foreseen low-flow less than 100 minutes, expiratory carbon dioxide greater than 10 mm Hg during resuscitation, and age 65 years or younger. Such criteria were intentionally stricter than in the previous series (accepting no-flow time less than 5 minutes). Henceforth, between January 2014 and July 2015, a total of 23 patients received E-CPR; among these, 48% had sustained OHCA. Overall survival at post-E-CPR day 30 decreased from 36.7% in the first period to 29.8% in the second period; at midterm this difference was not significant, probably because of the low sample size ($P = .22$ by log-rank test). Early survival among patients with OHCA passed from 17% during the first period to 9.1% for the second period, despite adoption of more rigid inclusion criteria concerning no-flow time.

We would like to share these preliminary data, and we suggest that caution is needed in the extension of E-CPR to patients with OHCA. The results in this subgroup are heavily influenced by a large array of variables, including underreporting of no-flow time, territorial organization of emergency services, logistics of patients' transfer to the hospital, and lack of knowledge about history and comorbidities of patients with OHCA. Many of these factors often remain beyond the control of the E-CPR team.³ Dedicated protocols and scores are probably to be developed for patients with OHCA through continued collection of clinical data and multicenter registries.⁴ Efforts to minimize the time from OHCA to E-CPR implantation and adjuncts such as therapeutic hypothermia might have positive effects on outcomes.⁵ Adaptation of the inclusion criteria to local organizational conditions requires a multidisciplinary discussion among each institution's cardiothoracic surgeons, intensivists, emergency medicine specialists, and regulatory authorities. Although it is highly challenging, E-CPR remains an exciting domain where much progress can still be done.

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SURGEON VOLUME AND PROCEDURE SELECTION

To the Editor:

I enjoyed the recent article by Camposilvan and colleagues,¹ "The Effect of Surgeon Volume on Procedure Selection in Non-Small Cell Lung Cancer Surgeries," in the September 2015 issue of *The Journal of Thoracic and Cardiovascular Surgery*. The article presented data from an Ontario-based population. Camposilvan and colleagues¹ concluded that certain specific thoracic oncology resections (pneumonectomy and wedge resection) decreased as the surgeon's volume increased.

The conclusion was very interesting, with the contention that the more high-volume surgeons (ie, the more experienced surgeons) performed a sleeve or extended resection and avoided pneumonectomy or performed a more anatomic procedure, such as a segmentectomy, rather than a wedge. The discussion at the national meeting provided additional insights into why such a relationship might exist.

One other contributing factor is that National Cancer Institute-affiliated institutes and large medical centers have a weekly tumor board composed of thoracic oncologists, radiation oncologists, thoracic surgeons, and rehabilitation services. In light of the recent data² regarding the increased 90-day mortality after pneumonectomy in the same Ontario-based population, such a multidisciplinary conference would rarely favor pneumonectomy. The oft-referenced North American Intergroup 0139 study³ demonstrated that pneumonectomy after radiation and chemotherapy did not result in improved survival when compared with radiation and chemotherapy without surgery.

The mention of these references by multidisciplinary team members, despite my own institution's excellent 30-day outcomes with pneumonectomy (with or without