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Invited Commentary

Younger is Better for Elective Open Abdominal Aortic Aneurysm Repair, but…

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Open surgery has been long established as the only proven effective therapy for treatment of abdominal aortic aneurysm (AAA). In the current endovascular aneurysm repair (EVAR) era, open AAA surgery may still represent the best choice for some patients who risk less from the open, more invasive but also more durable procedure, such as many young patients. In this issue of EJVES, Gupta et al. reviewed 2007–2009 perioperative outcomes in AAA repairs from the National Surgical Quality Improvement Program (NSQIP), a prospective multicentre US database, and found that, by comparing 30-day mortality after open AAA and EVAR, the risk-excess related to open surgery (as suggested in many previous randomised trials) was completely lost when the analysis was restricted to young patients 60 years or less of age: 0.4% after open surgery and 1.1% after EVAR.[1] Other studies also agree that open surgery for AAA can be performed today with very limited perioperative risks in healthy patients, probably as the effect of a combination of advanced standardised surgical techniques and improvements in anaesthesiology, medical care, perioperative protocols and risk factors management. In the recently published randomised ACE (Anevrysme de l'aorte abdominale: Chirurgie versus Endoprothese) trial that compared EVAR and open surgery for >5-cm AAA repair in low-to-moderate risk patients based on Society of Vascular Surgery co-morbidity score <3, mortality rates with surgery were minimal and comparable to those of Gupta et al.: 0.6% (1.3% with EVAR).[2]

Nevertheless, younger age is not always better than older age to receive AAA repair. The early presentation of aortic aneurysm may be a marker of more aggressive vascular disease associated with increased co-morbidity status and higher cardiovascular mortality risks. Not all the young patients are as healthy as they seem according to age alone, and the perioperative risk of open surgery may be sensibly higher when young but highly diseased patients (e.g., with pulmonary, coronary, renal comorbidities, etc.) require treatment for AAA. Age is only one of the multiple factors included in various validated predictive scores systems used for stratification of perioperative mortality risk in AAA patients (e.g., Glasgow Aneurysm Score (GAS), Vascular Biochemistry and Haematology Outcome Models (VBHOM), Vascular-Physiological and Operative Severity Score for the enUmeration of Mortality (V-POSSUM), etc.). Full co-morbidity patterns as well as aneurysm complexity/extension, specifically present in young patients, are worth considering when we explore mortality risk in the young patients receiving treatment for AAA.

Indeed, despite the very low mortality, the study of Gupta et al.[1] showed that major perioperative morbidity (mainly infective, respiratory and renal complications) rate was twofold higher after open surgery than after EVAR (18.8% vs. 9.2%; $p < 0.0001$), a finding that was opposite to that shown in ACE and other randomised trials comparing EVAR and open repair suggesting a trend for greater complication and re-intervention rates after EVAR.[2] The higher rate found by Gupta et al. might be related to the more in-depth and comprehensive analysis of perioperative morbidity (encompassing more than 20 complications), but it likely reflected the invasiveness of open surgery in a group of AAA patients at higher operative profile despite the young age in common practice.

Of interest, in the analysis of Gupta et al., high body mass index (in addition to disabling stroke and bleeding disorders) and smoking (in addition to open surgery, hypertension and respiratory disease) were independent predictors of perioperative mortality and major morbidity, respectively.[1] Thereby, there are relevant modifiable risk factors that currently are allowed to and require to be addressed before planning elective open repair of AAA in young patients to further decrease the periprocedural risks. Aggressive lifestyle modification is essential to be achieved in young patients counselled for type of AAA repair.

Young but not healthy patients with large and extensive AAA are those most challenging to manage. However, still today, EVAR and open surgery are mainly recognised as mutually exclusive competitors running for a racing prize for more than comparable and equally valid techniques. It should be worthwhile to appraise EVAR and open surgery as equally valuable procedures for AAA repair, each with specific side effects and more accurate efficacy in some more than in other individual settings to allow the best-suited selected indications in AAA repairs. In a similar way, a beta-blocker, an angiotensin-converting enzyme inhibitor or a diuretic drug are usually selected to best treat hypertension in individual patient settings.

Even if young age seems to be better for reducing perioperative mortality risk, in choosing the best therapy for AAA, the

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issues to be discussed with the patient do not rely only on age but on accurate and more comprehensive assessment of multiple risk factors, including comorbidities, aneurysm morphology/location, presence of widespread vascular disease and life expectancy. A critical analysis, without pre-defined preferences, would allow to apply the best therapeutical choice to achieve the highest benefit in young AAA patients with both, open and EVAR, techniques.

References

1 Gupta PK, Ramanan B, Lynch TG, Gupta H, Fang X, Balters M, et al. Endovascular Repair of Abdominal Aortic Aneurysm does not Improve Early Survival Versus Open Repair in Patients Younger than 60 Years. *Eur J Vasc Endovasc Surg* 2012;**43**:506–12.

2 Becquemin JP, Pillet JC, Lescalie F, Sapoval M, Goueffic Y, Lermusiaux P, et al. ACE trialists. A randomized controlled trial of endovascular aneurysm repair versus open surgery for abdominal aortic aneurysms in low- to moderate-risk patients. *J Vasc Surg* 2011;**53**. 1167-1173.e1.