

The Availability of Endovascular Aneurysm Repairs Reduces Overall Mortality Rates for Treating Abdominal Aortic Aneurysms

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Peter Polterauer, MD, Vienna, Austria; A.M. Prusa, Vienna, Austria; K.S. Wolff

Purpose

The mortality rates of open graft replacements (OGR) for abdominal aortic aneurysm (AAA) versus endovascular aneurysm repairs (EVAR) over time and after modifying selection criteria were investigated.

Method

A review was conducted of 1,021 consecutive patients who underwent AAA repair from 1989 through 2002. Four hundred ninety-six elective OGRs for infrarenal AAAs (STANDARD), 289 elective EVARs for infrarenal AAAs, 59 complex OGRs for suprarenal AAAs, and 177 emergent OGRs for ruptured AAAs were performed. Patients from 1995 to 2002 were divided into two groups based on shifting treatment strategies: 454 were treated by STANDARD or EVAR at the surgeon's discretion between 1995 and 2000 (post EVAR); the second group comprised 161 patients treated in 2001–2002 after the introduction of "high-risk" screening criteria (age \geq 72 years, diabetes mellitus, renal dysfunction, impaired pulmonary function, or ASA class IV) that dictated EVAR whenever anatomically feasible. For comparison, 170 STANDARDS performed in the 6 years prior to EVAR served as a control group.

Results

Whereas surgery for ruptured AAAs remained fairly stable over the 14-year observation period, the number of patients undergoing elective aneurysm repair (STANDARD/complex OGR and EVAR) increased owing to the implementation of EVAR. ASA class IV patients increased by almost ninefold in the recent period versus pre-EVAR ($p = .006$). Despite the increased volume of patients, the overall mortality rate after elective infrarenal AAA repair decreased between the pre- and the post-EVAR periods (6.5% vs 3.7%). Similarly, mortality after STANDARD decreased to 4.8%. In the most recent period, no patient died after STANDARD ($p = .019$ vs pre-EVAR), leading to a 1.2% (2 of 161) mortality rate after elective infrarenal AAA repair ($p = .021$ vs pre-EVAR). Mortality in the EVAR group remained stable with 2.4% in the observed time periods. The mortality rate in complex procedures was 14.3% in the pre-EVAR period, and 7.7% (1 of 13) in 2001 to 2002.

Conclusion

The implementation of an EVAR program increases the total volume of AAA repairs. By allocating patients to EVAR or open repair based on their risk factors, mortality was markedly reduced to as low as 1%. So by EVAR, a possibility of treating AAA in otherwise incurable high-risk patients was created. Today, both methods should be offered in high quality vascular institutions.

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