Revista Mexicana de Anestesiología

CONFERENCIAS MAGISTRALES
Vol. 32. Supl. 1, Abril-Junio 2009
pp S35-S36

Thoracic aortic aneurysm: Anesthesiologist's view 2009.

George Silvay, M.D., Ph.D.*

* Professor, Department of Anesthesiology Mount Sinai School of Medicine, New York, NY 10029 USA

Surgical repair of thoracic aortic aneurysm (TAA) is a complex procedure that poses many surgical and anesthetic challenges. Early diagnosis and elective treatment of TAA is of great importance. Elective surgeries in specialized institution have the best results. Majority of diagnosis are due to a routine chest X-ray or other radiologic imaging for other medical problems. In the United States over 45,000 people die annually from diseases of the aorta. Diagnosis by size and symptoms, are recently enhanced with additional «non-size criteria» by evaluation of mechanical properties of aorta, symptomatic athero-embolism and biomarkers. It is important to recommend the type of treatment in a timely manner, regarding from conservative, radical surgical resection or placement of endovascular stent.

Once the decision for operative repair has been made, the patients are assessed in the thorough preoperative evaluation. Our institution utilizes a multi- disciplinary approach in a specialized Pre-Anesthetic Clinic (PAC) for day admission cardiac and major vascular surgery patients. On the day of surgery, the patient is admitted to the hospital in the PAC. Following all routine clinical and administrative necessities, the patient is then escorted to the operating room.

Anesthetic management: Prior to induction of anesthesia, standard ASA monitoring started and antibiotic prophylaxis is initiated. Airway management (for descending thoracic aortic aneurysm repair with double lumen tube) and monitoring are demonstrated. In addition, we monitoring, if applicable, somatosensory and motor evoked potentials, cerebro-spinal fluid pressure, spinal cord perfusion pressure and cerebral oxygen saturation. A brain protection strategy for open surgical repairs of the ascending aorta and/ or the aortic arch is an essential component of the operative and anesthetic management. For repair of descending thoracic/ thoracoabdominal aneurysm the focus is prevention of spinal cord complication – paraplegia. For different surgical repair is utilized deep hypothermic circulatory arrest, or distal perfusion.

From February 1999 to January 2007, 1,135 patients underwent different type of surgical repair of thoracic aortic aneurysm. Overall mortality was 6.4%. Patients were divided into three age groups: age < 65 (n = 365), 65 - 75 (n = 420), and age > 76 (n = 345). Patients age > 76 years had a higher mortality rate, but did not reach significance (95%CI 0.6-3.1 and 0.7-4.6 respectively). Gender did not significantly affect death rate.

A clear understanding of the natural history of TAA is limited by insufficient information from institutional databases as well as different surgical intervention during variety of aortic disease. Currently, acute aortic events are still the first clinical symptoms for diagnosis and treatment. Advanced age correlates with a higher operative mortality risk with dissections and rupture being more common in the elderly population. Our group demonstrated that risk of aortic in TAA increased by a factor of 2.6 for every decades of life. We demonstrated only a slight, non significant increase in mortality rate in group of patients age over 76 years, compare to a younger population. It is well documented that surgical repair of supra-diaphragmatic repair of aortic aneurysm, can be safely performed in experience centers, with the mortality below 4% across a wide patient age range. Results support the need for a more proactive intervention in symptomatic geriatric patients as it relates to earlier consideration of elective, rather than emergency operations. Establishments of «Aortic Clinic» will follow the group of patients with TAA and will select time and type of optimal treatment.

At present time no studies exist comparing the results of stent grafting and open surgical treatment for TAA.

REFERENCES

1. Elefteriades JA. Thoracic aortic aneurysm: Reading the Enemy's playbook. World J Surg 2008;32:366-374.
2. Coselli JS. Evolution of thoracic aortic operation. 30th Ann Mtg SCA, Proc. (p92-99) April 2009.
3. Griepp RB, Griepp EB. Spinal cord perfusion and protection during descending thoracic and thoraco-abdominal aortic surgery: The collateral network concept. Ann Thos Surg 2007;83:S856-859.
4. Svenson LG, Kouchoukos NT, Miller DC. Expert Consensus Document on the Treatment of descending thoracic aortic disease using endovascular stent-grafts. Ann Thor Surg 2008;85:S1-41.
5. Ullery BW, Peterson JC, Milla F, et al. Cardiac surgery in select nongenarians: should we or shouldn't we? Ann Thor Surg 2008;85:854-860.
6. Aortic surgery and anesthesia «How to do it». Eds. Chiesa R, Melissano G, Cosseli JS, et al: Publ. Editrica San Raffaele, Milan, Italy. December 2008.
7. Etz CD, Zoll S, Kari FA, et al. Redo lateral thoracotomy for reoperative descending and thoracoabdominal aortic repair a consecutive series of 60 patients. Ann Thor Surg 2009 in press.
8. Silvay G, Stone ME. Repair of thoracic aneurysms, with special emphasis on the preoperative work-up. Semin Cardiothor Vasc Anesth 2006;10:11-15.
9. Fischer GW. Recent advances in application of cerebral oximetry in adult cardiovascular surgery. Semin Cardiothos Vasc Anesth 2008;12:60-69.
10. Silvay G, Castillo JC, Chikwe J, et al. Cardiac anesthesia and surgery in geriatric patients. Semin Cardiothor Vasc Anest 2008;12:18-28.
11. Conrad JS, Cambria RC. Contemporary management of descending thoracic and thoracoabdominal aortic aneurysm. Ann Thor Surg 2007:83:S863-864.