future study of this kind would complete the present, excellent study and provide precise data on the increase of risk in patients undergoing aortic arch surgery according to their age?

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Commentary: Aortic arch surgery—Acting your age

Kanika Kalra, MD, and Edward P. Chen, MD

Growing technology and access to health care have led to improved life spans across the world. It is projected that life expectancy may increase over the coming decades from 79.7 years in 2017 to 85.6 years by 2060 in the United States.¹ With resultant changes in demographics, the need for complex surgical procedures such as aortic surgery in the elderly population is now commonplace. Despite technical advances and improved outcomes in proximal aortic surgery, the complexity of these operations still predispose the elderly to higher risks of stroke, delirium, and renal failure.

Operative mortality from aortic surgery in the elderly ranges from 3.7% to 37% depending upon age and elective versus emergency nature of the operation.²⁻⁴ The International Registry of Acute Aortic Dissection demonstrates that age is an independent predictor of mortality in type A aortic dissection.² Data from both the International Registry of Aortic Dissection and the German Registry for Acute Aortic Dissection Type A also suggest that conservative management in this population is associated with more dismal outcomes.^{2,4} Unfortunately, current guidelines do not propose any age cutoff for offering surgery for ascending aortic pathology.

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CENTRAL MESSAGE

Operative intervention may be justified in the elderly with thoracic aortic disease but needs diligent decision-making taking into account frailty, patient expectations, and hybrid approaches.

Reference

1. Chung J, Stevens L-M, Chu MWA, Dagenais F, Peterson MD, Boodhwani M, et al. on behalf of the Canadian Thoracic Aortic Collaborative (CTAC). The impact of age on patients undergoing aortic arch surgery: evidence from a multicenter national registry. *J Thorac Cardiovasc Surg*. 2021;162:759-66.e1.

We congratulate Chung and colleagues⁵ for undertaking an exhaustive retrospective analysis of a large cohort to determine the impact of age on outcomes of aortic arch surgery. The authors compared the outcomes of 2520 patients undergoing aortic surgery with circulatory arrest across 10 centers.⁵ They analyzed 3 groups, age less than 65 years, 65 to 74 years, and greater than 75 years, and demonstrated that age independently predicted in-hospital mortality and morbidity defined by the Society of Thoracic Surgeons defined composite, but not stroke, in both elective and emergency settings. Fifty-seven percent of patients aged 75 years or more experienced at least 1 serious complication after emergency repair. The oldest cohort experienced an in-hospital mortality of 8.6% in the elective setting and 22% in the emergency setting.

This study provides important insights into operative outcomes across different age groups, but lacks valuable information regarding long-term survival and quality of life, which are important considerations in the elderly

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population. Assessment of frailty has now proven that chronological age can differ from biological age. With the advent of several scores that encompass functional status, hypoalbuminemia, sarcopenia, and so forth as measures of physiologic reserve, a more comprehensive risk stratification will be needed, which the authors recognize as a limitation. In addition, this study does not address hybrid approaches that are now available for thoracic aortic pathology. These endovascular techniques are usually associated with shorter hospital stays and a faster recovery and may be more viable in this population.

Despite advanced age corresponding with an increased comorbidity burden, it is safe to conclude that it should not be used just as a number to designate a patient “too old” for aortic surgery. Thorough preparation will be essential to handle the needs of an aging population. For example, recognition of frailty preoperatively should potentially trigger initiation of “prehab” or preoperative rehabilitation to better prepare these patients for surgery. Diligent judgment and shared decision-making with a thorough

assessment of frailty, comorbid medical conditions, quality of life expectations, and availability of minimally invasive options will ultimately be needed to provide optimal outcomes for the growing elderly patient population.

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