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### **Cardiac surgery in nonagenarians: Feasibility and suitability in the age of percutaneous coronary intervention and trans-catheter aortic valve replacement**

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**Introduction:** As the US population continues to experience an increase in life expectancy, cardiac surgeons are confronted with the task of performing surgery in the most advanced age group. In the present era, the option of surgery is often weighed against less invasive procedures such as Percutaneous Coronary Intervention (PCI) and Transcatheter Aortic Valve Replacement (TAVR). The aim of this study is to demonstrate the feasibility of cardiac surgery in nonagenarians and assess its suitability in the modern era.

**Method:** We performed retrospective data analysis of 14 consecutive patients over the age of 90 who underwent cardiac surgery in Danbury Hospital between January 2005 and October 2014. Demographic profiles, pre-surgical, intraoperative and post-surgical data were assessed using institutional database. Late survival was assessed using the social security index and outpatient electronic medical records.

**Results:** All fourteen patients in the study group were Caucasian, comprised of nine males and five females. The mean age of the study group was 91.9+ years. In addition, eight out of the fourteen subjects (57.1%) were designated NYHA (New York Heart Association) class 3 or greater. Dyslipidemia and hypertension, the most prevalent comorbidities, were present in 85% (12/14) of those patients studied. The following were also observed among the study group: five patients underwent Coronary Artery Bypass Graft Surgery (CABG), five had Aortic Valve Replacement (AVR), three had both CABG and AVR, and one had Mitral Valve Replacement (MVR). Of those individuals, one was urgent and one was redo. Major complications occurred in 35.7% (5/14) of the population and the average post-operative length of stay was 13.6 days. There was no perioperative mortality. Three patients (21.4%) were re-admitted within 30 days primarily due to pulmonary edema. The survival rates at 30 days, 60 days, 1 year and 3.4 years were 100%, 92%, 78%, and 50% respectively. Five out of the fourteen patients (35.7%) were discharged directly to their home with the remaining 64.3% going to a rehabilitation facility.

**Conclusion:** Although the study is limited by the small number of subjects, it demonstrates that in select patients, cardiac surgery can be performed in nonagenarians with marginally higher complication rates and good overall survival. Further studies and long term follow-up will be required to demonstrate if cardiac surgery in this age group remains an appropriate option over novel percutaneous approaches.

#### **Biography**

Athanasios Smyrliis obtained his MD degree, summa cum laude, from the University of Ioannina Medical School in Greece. He completed his Internal Medicine training at the Albert Einstein Medical Center in Philadelphia and his Cardiology training at the Western Connecticut Health Network, a Yale School of Medicine affiliate. He is the recipient of over twenty scholarships and awards for academic excellence. He has several publications in reputed journals and serves as a regular reviewer for multiple cardiology journals including the International Journal of Cardiology.

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