Long-Term Clinical and Echocardiographic Follow-Up of the Freestyle Stentless Aortic Bioprosthesis – the Tel Medical Center Experience

Schwartz Lorin, MD[1]*, Topilsky Yan, MD[1]*, Uretzky Gideon, MD[2], Nesher Nahum, MD[2], Ben-Gal Yanai[2], MD ,Biner Simon, MD[1] ,Keren Gad, MD[1], Kramer Amir, MD[2]

[1]Division of Cardiovascular Diseases Tel Aviv Medical Center

[2]Division of Cardiovascular Surgery, Tel Aviv Medical Center

DISCLOSURE - NONE

Background

- Stentless aortic bioprostheses were designed to provide improved hemodynamic performance and potentially better survival.

- Aims:
  - Outcomes of patients after aortic valve replacement with the Freestyle stentless bioprosthesis in the Tel Aviv Medical Center followed for ≤15 years

Methods and results

- Between 1997 and 2011, 268 patients underwent primary aortic valve replacement with a Freestyle bioprosthesis

Variables	**All**
Age (years)	71.0±9.3
Sex Male	58%
Renal failure (Creatinine>1.7%)	11%
Diabetes Mellitus (%)	27%
LV ejection fraction (<35%;%)	6%
Logistic EuroScore‡	11±10.2
Charlson Score‡	4.2±1.5
Ejection fraction (%)	51.9±12.1
Peak trans-aortic gradient (mmHg)	75.0±29
Mean trans-aortic gradient (mmHg)	43.4±17
Aortic valve area (cm^2)	0.78±0.3
Systolic pulmonary pressure (mmHg)	37.1±14.7
≥Moderate Mitral regurgitation (%)	10

- 211 (79%) subcoronary position.
- Peak and mean trans-aortic gradient 22.8±9.6mmHg and 12.1±5.4mmHg in **3 months follow up**.
- In-hospital mortality 4.1% (n=11), but differed significantly between the first 100 patients operated before 2006 (8 patients [8.0%]) to the last 168 patients operated after January 2006 (3 patients [1.8%]; p=0.01).

- 5-year survival rates were 85±2.5%.
- 5-year survival was markedly improved in patients operated after January 2006 compared to those operated on at the early years of the experience (92.3±2.3% vs. 76.0±4.4%; p=0.0009).
- All 21 octogenarians operated after January 2006 survived surgery, with excellent 5-year survival (85.1±7.9%).
- Six patients required reoperation during follow-up: for structural valve deterioration in five and endocarditis in one.

- Discussion:
  - AVR with the Freestyle bioprosthesis provides good long-term hemodynamic and clinical outcomes, even in octogenarians.
  - Valve calcification is the major (and rare) mode of valve deterioration leading to reoperation in these patients.
- Strengths:
  - the acquisition of wide clinical, as well as echocardiographic data with up to 15 years of follow up after surgery is a significant strength of our study.