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Aortic Valve Replacement: Who are the high risk patients, that should be considered for transcatheter procedures?

Spiegelstein, D; Kogan, A; First, M; Shinfeld, A; Malachy, A; Raanani, E
Chaim Sheba Medical Center, Ramat Gan, Israel

Background:
Transcatheter aortic valve implantation (TAVI) is an emerging technology for high risk patients with severe aortic stenosis. High risk patients are defined by Logistic euroscore and STS score. The objective of our study is to analyze the outcome of all patients undergoing AVR±CABG , and identifying risk factors for adverse early outcome.

Methods:
From 2004, 1273 patients underwent AVR. Isolated AVR and AVR+CABG were performed in 773 patients. 80% patients had aortic stenosis, 9% regurgitation, and 11% mixed pathology. 199 patients were Octogenarians (26%) - Group A, and 574 were below 80 years - Group B.
Mean age, Logistic EuroScore, preop LVEF and NYHA were 83±2.5 and 66±11 ($p<0.01$), 17±14% and 8±9% ($p<0.01$) 52±11% and 55±12% ($p=0.34$), 2.1±1.3 and 2.0±1.3 ($p=0.18$), group A and B, respectively. In group A severe pulmonary hypertension (PHT) was more prevalent (7% vs. 3%, $p=0.02$), and previous cardiac operation was more common in group B (26% vs. 16%, $p<0.01$).

Results:
There were 47 (6%) in hospital death: 20 (10%) in the group A and 27 (5%) in group B ($p=0.02$). Mortality within octogenarians was distributed as follows: 7% for EuroScore<20 (mean 11±6%); 13% for EuroScore 20-30 (mean 25±13%) and 29% for EuroScore>30 (mean 46±17%).
Mean hospital length, ICU time and ventilation time, for Group A and B, respectively were: 10±8.2 and 8.4±7.4 days ($p=0.01$), 99±183 and 63±115 hours ($p=0.01$), 42±92 and 31±105 hours ($p=0.22$).
The most significant predictors for in hospital death were: age ($p<0.01$), EuroScore ($p<0.01$), severe PHT ($p=0.08$), previous cardiac operation ($p=0.08$) and female gender ($p=0.09$).

Conclusions:
Surgical AVR has good early results, in all age groups, with observed mortality, lower than predicted by the current available score models. The most high risk patients are octogenarians with EuroScore>30, females, severe PHT and previous cardiac operation. New scoring model is necessary for identifying the high risk patients for surgical AVR.