Transcatheter Aortic Valve Implantation (TAVI) in extreme-risk and high-risk patients in the local Asian population

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Introduction
Transcatheter Aortic Valve Implantation (TAVI) for treatment of severe aortic stenosis (AS) has been proved to improve survival and quality of life in a group of inoperable and high-risk symptomatic patients. This involves percutaneous implantation of a transcatheter heart valve through the femoral or subclavian artery routes without subjecting the patients to open heart surgery or cardio-pulmonary bypass. Limited data is available on the safety and efficacy in the local Asian population.

Objectives
We report the results of the TAVI procedures done in QEH for a group of extreme-risk and high-risk symptomatic severe AS patients and compare with the CoreValve US Pivotal Trial.

Methodology
The TAVI procedures are done in QEH by a multi-disciplinary TAVI heart team comprising cardiologists, cardiac surgeons, anaesthesiologists, radiologists and cardiac nurses. All potential patients would be interviewed independently by the cardiologists and cardiac surgeons. The TAVI Heart Team then decided whether the patient should undergo SAVR or TAVI. All patients were assessed by echocardiogram, CT scan and angiogram to decide on suitability. Echocardiogram and 6-minute walk
test would be performed according to schedule post-procedure. All complications would be reported to an independent Safety Monitoring Committee. All data will be captured by the local QEH Registry. Patients were considered extreme-risk (or inoperable) if their Logistic EuroSCORE was ≥20 and high-risk if it was between 10-20.

Result
Results: From December 2010 to January 2015, 45 patients (29 males and 16 females) with symptomatic severe AS underwent the TAVI procedure. Average age was 83.2±5.1 and 80.2±4.6 years and the mean Logistic EuroSCORE was 32.4±9.7 and 12.1±3.9 for extreme-risk and high-risk patients respectively. All procedures were done under general anaesthesia in our cardiac catheterization laboratory or hybrid OR. Aortic valve area improved from 0.62±0.2cm² to 1.83±0.31cm² and from 0.75±0.15cm² to 1.96±0.35cm² with mean gradient decreased from 51.3±13.0mmHg to 8.6±6.7mmHg and from 49.3±12.2mmHg to 9.2±2.9mmHg for extreme-risk and high-risk group respectively. Majority of patients have only trivial to mild aortic regurgitation during subsequent follow-up. Permanent pacemakers were implanted in 5 patients (25%) for extreme-risk and 2 patients (8%) for high-risk group. 30-day all-cause mortality was 0% and 4% for extreme-risk and high-risk respectively in our cohort and it was 8.4% and 3.3% respectively in the CoreValve US Pivotal Trial. 1-year all-cause mortality was 15% and 8% for extreme-risk and high-risk patients respectively in our cohort and it was 24.3% and 14.2% respectively in the CoreValve US Pivotal Trial. All patients showed marked symptomatic improvement in terms of NYHA Functional Class, 6-minute walk test and quality of life measurement. This compares favourably with results of the CoreValve US Pivotal Trial and the Asia TAVI Registry. Conclusions: Being a high-risk procedure, TAVI was shown to be safe and feasible in a group of extreme-risk and high-risk symptomatic severe AS local Asian elderlies and this benefit compares favourably with international clinical trials and registries.