The Impact of TAVI Nurse Coordinator on patient management of Transcatheter Aortic Valve Implantation (TAVI) program in QEH

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Introduction

• Aortic Stenosis – most common valvular heart disease in the elderly
• 4.6% in adults $\geq 75$ years of age

Healthy Aortic Valve                      Stenosed Aortic Valve
Aortic Stenosis is Life-Threatening and May Progress Rapidly

Treatment Options and Timing Matters

“Survival after onset of symptoms is 50% at two years and 20% at five years.”

“Surgical intervention [for severe AS] should be performed promptly.”
AVR Not performed in Some Patients with severe aortic stenosis... if

- High surgical risk
- Short life expectancy
- Co-morbidities hindering GA, e.g. poor lung reserve
- Advanced age
- High frailty score

Untreated Severe Aortic Stenosis Patients are at a High Risk for Death and a Poor Quality of Life → repeated admission for symptom exacerbation
TAVI emerges as a viable alternative in inoperable or high risk elderly patients with symptomatic AS
CoreValve® Transcatheter Procedure

Figure 1: Balloon catheter threaded through sheath and into heart

Figure 2: CoreValve placed into position over the diseased aortic valve

Figure 3: CoreValve in place, procedure completed

Experimental Device in the United States and Limited by Federal Law to Investigational Use.
Key to Success

- **Patient Selection**
  - Understand our patients
  - Meticulous patient assessment

- **Multi-disciplinary TAVI Heart Team**
  - Collaborative effort
Understanding Our Patients

- Frailty
- Comorbidities
- Disability
- Advanced age

- Quality of life
- Expectations
- Motivations
Consenting for Risks and Benefits

- Mortality
- Myocardial Infarction
- Stroke
- Bleeding
- Acute Kidney Injury
- Vascular Complications
- Conduction Disturbances
- Valvular Function

Updated Standardized Endpoint Definitions for Transcatheter Aortic Valve Implantation

The Valve Academic Research Consortium-2 Consensus Document†


Rotterdam, the Netherlands
Multi-disciplinary TAVI Heart Team

- Cardiac Anesthesiologists
- Interventional Cardiologists
- Radiologists
- TAVI Nurse Coordinator
- Echo Cardiologist
- Cardiac surgeons
- Patients with Severe AS
TAVI Nurse Coordinator’s Duties

Pre-operative Preparation
• Patient and family’s education
• Cardiologists’ assessment
• Echocardiogram
• Independent assessment by cardiac surgeon
• Coronary angiogram + Peripheral angiogram
• CT aortogram
• TAVI Heart Team meeting
TAVI Nurse Coordinator’s Duties

Follow-up & Data collection

• Arrange FU 1 week, 1 month and then every 3-4 months

• Drug compliance checking:
  - Plavix for 3 months, Aspirin for life

• Echo at 1, 6, 12 months and then yearly

• 6 min walk test at 1, 6, 12 months

• SF-12 at 3 & 12 months

• NYHA functional class assessment

• Risk factors control
TAVI Nurse Coordinator’s Duties

Patient and Family Education

Assist Patient’s Assessment

Communicate among Heart Team Members

Diagnostic Work-Up Coordination

Waitlist Management

Support for Research

Development of Program Forms

Communication With Referral Base

Follow-Up Program

Data Collection HA TAVI Audit

Clinical Coordination & Education

Convenor Role

General Admin & Data Mx
The Hong Kong Experience

First TAVI performed at Queen Elizabeth Hospital on Dec 6th, 2010

<table>
<thead>
<tr>
<th>Center</th>
<th># of Cases</th>
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<tbody>
<tr>
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<tr>
<td>Prince of Wales Hospital</td>
<td>26</td>
</tr>
<tr>
<td>Queen Mary Hospital</td>
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<tr>
<td><strong>TOTAL</strong></td>
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Medtronic CoreValve - 86

Edwards Sapien - 15
2-Year All-cause Mortality
US CoreValve Pivotal Trial Vs QEH

ACC 2015

No. at Risk

<table>
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<tr>
<th>Transcatheter</th>
<th>Surgical</th>
<th>QEH TAVI</th>
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<td>391</td>
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<td>219</td>
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Transcatheter

Surgical

ACC 2015

Graph showing the 2-year all-cause mortality rates for Transcatheter, Surgical, and QEH TAVI, with specific numbers for each group at different months post-procedure.
30-Day Stroke Rate

2. Meredith. VARC-adjudicated Outcomes in Inoperable and High Risk AS Patients. TCT 2010, Washington, DC.
Mean Gradient & Valve Area

QEH Registry

The PARTNER Trial

CoreValve ADVANCE Study
QEH | Symptom Status (NYHA Class)

NYHA Classification

* NYHA: New York Heart Association Functional Classification for Heart Failure Stages

(Class I = Best, Class IV = Worst)
6-Minute Walk Test

Paired-sample t-test: $p < 0.05$

Pre-TAVI: 215 Meters
Post-TAVI: 257.6 Meters

Paired-sample t-test: $p < 0.05$
Measurement for Quality of Life (SF-12)

**Physical Component**
Paired-sample t-test: $p < 0.05$

**Mental Component**
Paired-sample t-test: $p < 0.05$
Conclusions

• Queen Elizabeth Hospital is the first hospital to perform TAVI in Hong Kong and adopt TAVI coordinator

• TAVI Nurse coordinator enhances the process of care and clinical triage coordination

• Pivotal role of TAVI Nurse coordinator as the central hub for the smoother logistics of the TAVI program
Thank You