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May 20, 2020

Abstract

Objectives The impact of the COVID 19 pandemic on the treatment of patient with aortic valve stenosis is unknown and there is uncertainty on the optimal strategies in managing these patients. Methods This study is supported and endorsed by the Asia Pacific Society of Interventional Cardiology. Due to the inability to have face to face discussions during the pandemic, an online survey was performed by inviting key opinion leaders (cardiac surgeon/interventional cardiologist/echocardiologist) in the field of transcatheter aortic valve implantation (TAVI) in Asia to participate. The answers to a series of questions pertaining to the impact of COVID-19 on TAVI were collected and analyzed. These led subsequently to an expert consensus recommendations on the conduct of TAVI during the pandemic Results The COVID 19 pandemic had resulted in a 25% (10-80) reduction of case volume and 53% of operators required triaging to manage their patients with severe aortic stenosis. The two most important parameters used to triage were symptoms and valve area. Periprocedural changes included the introduction of teleconsultation, pre-procedure COVID 19 testing, optimization of pre-tests and catheterization laboratory set up. In addition, length of stay was reduced from a mean of 4.4 to 4 days. Conclusion The COVID-19 pandemic has impacted on the delivery of TAVI services to patients in Asia. This expert recommendations on best practices may be a useful to guide to help TAVI teams during this period until a COVID 19 vaccine becomes widely available.
Objectives

The impact of the COVID 19 pandemic on the treatment of patient with aortic valve stenosis is unknown and there is uncertainty on the optimal strategies in managing these patients.

Methods

This study is supported and endorsed by the Asia Pacific Society of Interventional Cardiology. Due to the inability to have face to face discussions during the pandemic, an online survey was performed by inviting key opinion leaders (cardiac surgeon/interventional cardiologist/echocardiologist) in the field of transcatheter aortic valve implantation (TAVI) in Asia to participate. The answers to a series of questions pertaining to the impact of COVID-19 on TAVI were collected and analyzed. These led subsequently to an expert consensus recommendations on the conduct of TAVI during the pandemic.

Results

The COVID 19 pandemic had resulted in a 25% (10-80) reduction of case volume and 53% of operators required triaging to manage their patients with severe aortic stenosis. The two most important parameters used to triage were symptoms and valve area. Periprocedural changes included the introduction of teleconsultation, pre-procedure COVID 19 testing, optimization of pre-tests and catheterization laboratory set up. In addition, length of stay was reduced from a mean of 4.4 to 4 days.

Conclusion

The COVID-19 pandemic has impacted on the delivery of TAVI services to patients in Asia. This expert recommendations on best practices may be a useful to guide to help TAVI teams during this period until a COVID 19 vaccine becomes widely available.

Introduction

The current COVID-19 pandemic has had significant impact on the healthcare delivery. There is a constant balance needed to rationlize limited resources while minimizing the risk of delaying important interventional procedures. The specific impact of COVID-19 on patients with aortic stenosis is not well studied. It is known however, that these patients, who are older and have pre-existing cardiac disease, are especially vulnerable. In addition, symptomatic severe aortic stenosis is a time sensitive disease and increase in wait times can potentially increase mortality. In Asia, the pandemic is at varying stages in different geographies (e.g. China, Hong Kong, Taiwan and Vietnam are seeing very few new cases, while several others are in the middle of the pandemic at the time of writing). While there has been prior guidance for the treatment of transcatheter aortic valve implantation (TAVI) from other cardiac interventional societies, it is unclear how the TAVI situation is in Asia. This letter describes the collective experience of how TAVI management has changed in Asia during this time and provides expert consensus recommendations on the role of transcatheter aortic valve implantation (TAVI) during the COVID-19 pandemic.
described. The use of teleconsultation, pre-procedural testing for COVID-19 as well as a tendency to reduce or minimize pre TAVI tests were adopted by some of the centres. Similarly, changes in the site of where TAVI is performed as well as modifications done in the catheterization laboratory were described. There were also reductions in the length of stay (4.4 to 4 days) of patients following the TAVI procedure during the pandemic.

**Asian TAVI Key Opinion Leaders recommendations for the management of patients with severe aortic valve stenosis during COVID-19 pandemic.**

**Pre TAVI work up and evaluation**

Minimize unnecessary testing during work up (keep visits minimal where possible without affecting safety of the patient)

Consider teleconsultation where available

Consider COVID-19 test before TAVI (type would vary according to available tests on site)

**Timing of TAVI during COVID**

**Urgent TAVI (done inpatient or within days – 2 weeks)**

1. Critical AS (defined as AVA < 0.6 cm²) with symptoms
2. Severe AS plus
   - NYHA III-IV
   - Labile symptoms (including chest pain, dizziness)
   - Not responding to medical treatment
   - Recurrent heart failure
   - Cardiogenic shock

**Semi urgent TAVI (weeks to 1 month)**

Severe AS (0.6-0.8 cm²) with

- NYHA II and/or
- LVEF < 50%

**Elective TAVI (1-3 months) (very close phone call/telehealth review weekly if deferred)**

Severe AS (0.8-1 cm²)

- NYHA I
- Normal LVEF

Asymptomatic with AVA < 0.75 cm², transaortic gradient of >50 mmHg or peak velocity >/=4.5 m/s

**TAVI procedure**

Consider negative pressure CCL room (catheterization/hybrid operating room) if available

Minimize unnecessary personnel in room (eg fellows/students/visitors)

Local anesthesia and monitored sedation if possible

Adequate personal protective equipment if suspected/confirmed COVID-19 patients

Terminal disinfection after TAVI procedure for suspected/confirmed COVID-19 patients

Consider pre-intubation in patients with high risk of heart failure (in negative pressure room prior to arrival in catheterization laboratory)

Maintain high TAVI standards
Post procedure

Streamline post-TAVI procedures to expedite safe early discharge if possible (e.g. early mobilization)

Teleconsult post discharge where available

Post lockdown measures

There is likely to be a protracted period of close vigilance required before the current COVID pandemic resolves or when the presence of an effective vaccine becomes widely available. The strict lockdown measures are already being gradually lifted in several Asian countries. However, requirements of social distancing as well as the above measures recommended are likely to be relevant. Increased number of pre-testing of patients with aortic stenosis for pre-symptomatic or asymptomatic COVID 19 infections prior to intervention may further mitigate the risks to healthcare workers. When the number of COVID-19 infections are kept under control and when hospital and intensive care resources become less overwhelmed, a cautious approach to increase the capacity for the number of patients treated should be considered in tandem with guidance from local public health experts.

References


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