Building a Ross Procedure Program, Keys to Success

Objectives

- This abstract provides a roadmap for launching a successful Ross procedure surgical program
- We focus on the logistics of team building and streamlining patient management to mitigate the impact of a steep learning curve on surgical outcomes.

Methods

- This is a narrative description of a division’s experience with the initiation of a surgical program dedicated to performing Ross procedure.
- We describe the process and provide tips that we believe have contributed to the success of the program.

Surgical Training

- The program was initiated by two experienced surgeons with experience in aortic root surgery and with defined goals for a successful program.
- A list of potential patients was developed. The surgeons attended a formal training course at a center of excellence in Ross procedures.
- This course was comprised of dedicated lectures, wet lab sessions, and live surgery observation.
- Surgeons participated in other wet labs, including one on the morning before performing their first case, aided by a proctoring surgeon with Ross procedure expertise.
- Two attending surgeons worked together in all cases and three other surgeons were added as the program grew to form a core group.

Patients Selection

- A patient selection pathway with specific eligibility criteria was established
- This was distributed among all cardiac surgeons and referring cardiologists to ensure the capture of potential Ross procedure candidates.

Standardized Procedure

- Efforts were made to standardize all aspects of the surgery.
- On the day of surgery, team members (including surgeons, anaesthesiologists, scrub nurses, and perfusionist) participated in a comprehensive team huddle to discuss the technical details of the planned procedure and any potential variations.

Postoperative Care

- An internal standardized order set was used to ensure that all members of the intensive care team managed these patients in a cohesive manner.
- This included specific instructions on
  - Fluid management
  - Inotropic/vasopressor support
  - Target blood pressure in the immediate postoperative period

Follow-up

- All Ross patients are captured in an institutional database.
- Clinical and radiological parameters were collected for all patients.
- A dedicated nurse practitioner was designated to provide regular contact with patients after discharge to ensure full adherence to strict blood pressure targets for the first 6 months after surgery.

Monitoring Outcomes

- A standardized quality process was utilized to continually review surgical outcomes.
- Detailed multidisciplinary team discussions were held to review any serious complications.

Program Growth Timeline

- The program was launched in July 2022.
- During the planning phase (0-2 months), surgeons attended preparatory courses and wet labs.
- The following phase lasted for the next 6-8 months, during which, surgeons performed their first cases where they double scrubbed with each other for support and to gain more exposure to the procedure.
- After that, three more experience surgeons from the team started performing the procedure under the proctorship of the two lead surgeons.
- The detailed program structure is presented in **Figure 1.**

Conclusions

- Building a successful program for Ross procedure requires meticulous planning, team building, and a standardized perioperative care pathway.
- These factors contribute to the program development and the achievement of excellent surgical results.

Roadmap to Building a Ross Program

Surgical Training

Formal & informal training
- Expert lectureship
- Expert observation
- Wet lab experience
- Proctored surgical experience

Patient Selection

Collaboration with Cardiology Team
- Criteria for Ross procedure
- Minimal comorbidities
- Good functional status

Team Preparation

Preparation of intraoperative team
- Anesthesia
- Perfusion
- Surgical assistants

Postoperative Care

Development of ICU protocol
- ICU education

Monitored Follow-up

Development of infrastructure for outpatient follow-up
- Creation of patient database
- Medical staff follow-up for BP control