CARDIAC SAQ 4
MODEL SAQ ON MITRAL VALVE
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Mitral Valve Surgery

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A previously fit and well 64 year old female patient is referred to cardiology department by her GP in view of her presentation with recent onset shortness of breath on exertion and presence of a pansystolic murmur at apical area. 2D ECHO reveals moderate mitral regurgitation with isolated prolapse of P2 leaflet. She has LVEF of 50% and a normal coronary angiography. She is scheduled for mitral valve surgery.

a) Describe anatomical aspects of mitral valve (4 marks)

b) What are the indications for surgical treatment & the surgical options for her. Discuss their advantages & disadvantages (5 marks)

c) How would you manage perioperative haemodynamics (6 marks)

d) What is the role of Transesophageal Echo in the perioperative management of mitral valve surgery (5 marks)
WEIGHTING

- Anatomy: ...................................................... 4 marks
- Indications, Options, Adv/Disadv... 5 marks
- Mx of Peri op haemodynamics....... 6 marks
- Role of TOE peri operatively......... 5 marks
a) ANATOMY

5 components

1. Mitral Valve Annulus
2. Mitral valve Leaflets
3. Chordae Tendinae
4. Papillary Muscles
5. LV wall

Chordae Annulus Leaflet LV wall Papillary Muscle (CALL PM)
MITRAL VALVE

CARPENTIER CLASSIFICATION

Scallops
P1 P2 P3
Commissures
ALC & PMC
Area &
Circumference
MITRAL VALVE

- Anterior annulus
- Anterior leaflet
- Anteromedial commissure
- Posterolateral commissure
- Posterior leaflet (3 lobes)
- Chordae tendineae
- Posterior annulus
- Lateral papillary muscle
- Medial papillary muscle
b) INDICATIONS, OPTIONS ............ 5

INDICATIONS:

• Symptomatic severe MR
• Asymptomatic, e/o mild-moderate LV DysFx (LVESD > 4 -4.5 cm : significant LV DysFx)
• Prevention of risks: Sudden death/LV DysFx

OPTIONS:

• MV Repair (Preferable given isolated P2 Prolapse)
• MV Replacement +/- chordal preservation
Advantages of repair:
- Avoidance of long term anticoagulation
- Preservation of structural integrity of MV apparatus
- Better Post operative LV Fx.
- Lower operative mortality
- Better long term survival

Disadvantages of replacement:
- Long term anticoagulation
  (Stented tissue valves available)
- Loss of normal LV geometry & Inferior LV Fx
c) MANAGEMENT OF PERI OP HAEMODYNAMICS

Monitoring: Invasive: A line/CVC/PAC + TOE
• Preload: Optimize
• Afterload: Low SVR
• Contractility: Maintain
• Rate: Moderate Tachycardia
• Rhythm: Sinus if achievable/may be in AF
MANAGEMENT OF PERI OP HAEMODYNAMICS: PREDICTION OF NEED FOR INOTROPES

6 INDEPENDENT PREDICTIVE FACTORS:

- VWMA on TOE
- Combined MV & CABG surgery
- LVEF < 30%
- Re operation
- Moderate to severe MR
- Aortic X clamp time

CHOICE OF INOTROPE:

- PDE inhibitor + Vasopressor
d) ROLE OF PERIOPERATIVE TOE ...5

- TOE is mandatory requirement for MV repair.
- MV is ideally suited for TOE examination.

PRE BYPASS ASSESSMENT:
- New Info (9 – 13% cases) - Changes in surgery
- Systematic multi plane imaging of the valve
- Aetiology & Mechanism, Severity, Location & extent
- LV Fx assessment & PA pressure measurement

POST REPAIR / REPLACEMENT ASSESSMENT:
- 6 – 11 % significant valvular dysfunction – second pump run 3-10%
- Adequacy of Repair /Replacement
- LVOT obstruction - SAM
SUGGESTED READING

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