CARDIO THORACIC SURGERY

PAPER- I

1. Describe surgical anatomy of tracheo-bronchial tree.

2. a. Enumerate constituents and various types of cardioplegic solutions.
   b. Functions of those constituents
   c. Advantages and disadvantages of blood Vs crystalloid cardioplegic solution

3. a. Embryology of transposition of great arteries.
   b. Coronary arterial anomalies

4. Briefly discuss diaphragmatic rupture under the following headings:
   a. Clinical presentation and signs
   b. Investigations
   c. Treatment

5. Discuss in brief solitary pulmonary nodule under the following headings:
   a. Differential diagnosis
   b. Investigations
   c. Management algorithms (flowchart)

6. Hemolysis during cardiopulmonary bypass: Causes, Systemic effects, management and recent advances.

7. Discuss in brief cardiac tissue engineering under the following headings:
   a. Donor cell types
   b. Delivery routes, advantages and disadvantages
   c. Clinical applications

8. 64 slice MDCT angiography:
   a. Comparison with conventional angiography
   b. Preoperative planning of primary and re-operative surgeries
   c. Role in congenital heart diseases
   d. Role in coronary artery disease

9. Describe the causes, risk assessment and neuroprotective strategies of cerebral injury during CPB.
10. Briefly discuss the role of nitric oxide (NO) in cardiac surgery under the following headings:
   a. Physiological basis of use of NO
   b. Indications for its use
   c. Modes of administration with dosing
   d. Precautions, safety issues related to its use in ICU
Write short notes on:

1. Discuss briefly the spinal cord protection during thoracic aortic surgery under the following headings:
   b. Methods of ischemia detection.
   c. Preventive strategies for spinal cord protection.

2. Benign thymic tumours: Classification, role of thymectomy in myasthenia gravis, and effects/complications after thymectomy.

3. a. Causes and types of post-operative cardiac dysrhythmias.
   b. Univentricular Vs biventricular pacing.
   c. Post-operative heart blocks and roles of temporary atrial or A-V sequential pacing.

4. a. Treatment for pectus excavatum
   b. Physiological effects of pectus excavatum
   c. Treatment for pectus carinatum
   d. Physiological effects of pectus carinatum.

5. a. Briefly discuss techniques of total chordal preservation; and
   b. Advantages of chordal preservation and long term effects on reverse left ventricular remodeling.

6. Double outlet right ventricle: Anatomic definition, classification, investigations, management (surgical) and results.

8. Discuss briefly your reasons for choice of valve prosthesis and or procedure:
   a. In a patient with end stage renal disease (ESRD)
   b. In a pediatric patient (≤ 12 years)
   c. In a lady in child bearing age.
   d. Non-rheumatic mitral valve disease in adult in 30's.
   e. Rheumatic mitral and aortic valve disease in an adult (≤ 45 years).

9. Enumerate types of congenital arch anomalies. Discuss in brief their presentation, investigations, management and results.

10. a. Hydatid cyst of lung: Diagnosis and management
   b. Pericardial cysts: Diagnosis and management

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Write short notes on:

1. Describe current status of extra-corporeal membrane oxygenation (ECMO) under the following headings:
   a. Indications of use
   b. Physiological basis
   c. Equipment required for setting up
   d. Method of weaning
   e. Complications

2. Discuss TNM classification for lung carcinoma in relation to:
   a. Recent recommendations in TNM criteria
   b. Choice of treatment based on TNM staging
   c. Results of treatments in various TNM stages.

3. a. CHOUSSATS' criteria for single ventricle
   b. Modified Fontan criteria
   c. Physiological basis of Fontan's circulation
   d. Advantages of one and half ventricle repair

4. a. Design of SYNTAX trial
   b. Outcomes of SYNTAX trial
   c. Impact of SYNTAX scoring system on current practice of coronary bypass surgery.

5. Discuss cardiopulmonary bypass strategies in a patient of Heparin Induced Thrombocytopenia (HIT) in terms of:
   a. Platelet pretreatment
   b. Platelet inhibition
   c. Alternate drugs for anticoagulation


7. Percutaneous Left Ventricular Assist Devices (P-LVADs):
   a. Types of P-LVADs available,
   b. It's role in bridge to transplantations
   c. Systemic deleterious effects on various organ systems.

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8. Discuss in brief methods to stop anastomotic leaks from a vascular anastomosis under the following headings:
   a. Names of various devices/substances
   b. Advantages and disadvantages of their uses
   c. Use of Gel-plugs; mechanism of action and contraindication of its usage.

9. Modified Vs conventional ultrafiltration: Difference between them, indications and advantages/disadvantages.

10. Discuss transannular patch in Tetralogy of Fallots under the following heads:
    a. Indications and contraindications
    b. Advantages and disadvantages
    c. Surgical technique
    d. Role of homografts Vs heterografts as replacement to transannular patch