Management Surgical ICU in Mahosot

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Mahosot Hospital Vientiane, Laos
Mahosot hospital was established in 1903
The biggest and the oldest hospital in Laos
Consist of 450 beds
Training center of doctors and nurses for the whole country
ICU is in charge for treatment every kind of critical ill patient from every service in the hospital
Surgical ICU

- 2001 cardiac surgery project was started in Vientiane Supported by Aid Development de la Sante (ADS, Luxembourg NGO)
- Congenital heart disease correction and valve replacement are performed
- Anesthesiologist in charge not only practicing anesthesia but monitoring and treatment post operative patient as well.
- We have learned to manage complication post operative such as pulmonary hypertension, atrial fibrillation, pericardial effusion which could lead to cardiac tamponade
- This is a reason and a result of an initiation of surgical ICU in Mahosot hospital.
Type of Cardiovascular Diseases Operated from 2001 to 2006 Sponsored by ADS (n=288)

- Mitral stenosis (MS)
- Patent Ductus arteriosus (PDA)
- Atrial septal defect (ASD)
- MS + MR
- Ventricular septum defect (VSD)
- Mitral regurgitation (MR)
- Tetralogy of Fallot
- Aortic regurgitation
- Mitral prolapsus
- AS + AR
- AV Bloc III
- Pulmonary stenosis
- Myxoma
- CAV
- CAD
- Aortic stenosis (AS)
CVD Groups Operated from 2001 to 2006 Sponsored by ADS (n=288)

- Rheumatic Heart Diseases: 52%
- Congenital Heart Diseases: 2%
- Pace Maker Implantation: 1%
- Others: 45%

Legend:
- Red: Rheumatic Heart Diseases
- Yellow: Congenital Heart Diseases
- Cyan: Pace Maker Implantation
- Gray: Others
Pre-operative Complications (n = 94/288 = 32.6%)

- Pulmonary hypertension: 55%
- Atrial fibrillation: 2%
- Thrombus in left atrium: 7%
- Sludge in left atrium: 17%
- Cerebral embolism: 19%

Legend:
- Red: Pulmonary hypertension
- Yellow: Atrial fibrillation
- Cyan: Thrombus in left atrium
- Gray: Sludge in left atrium
- Black: Cerebral embolism
Post-operative Complications

\( n = \frac{56}{288} = 19.6\% \)

- Pericardial effusion
- Cardiac tamponade
- Cardiac arrhythmia
- Thrombus
- Hemothorax
- Hemorrhage
- Cerebral embolism due to clots
- Cerebral embolism due to gas
- Pleurisy
- Pneumothorax
- Respiratory distress
- Others
Discharge Status (n=288)

- 98% Home with satisfactory result
- 2% Intrahospital death
Transition from operating room to SICU

- The transition period is a crucial time
- Hemodynamic monitoring and stabilization is essential
- Airway management: endotracheal tube and chest drainage must be the top priority
- Adequate ventilation must be ensure
- Infusion pump and vasoactive infusion line
Hemodynamic management and complication

- Bleeding
- Myocardial ischemia
- Ventricular dysfunction
- Hypertension
- Pulmonary hypertension
- Vasodilatation (SIRS)
Fluid management

- Management of fluid can be a challenge
- The effect of hypothermia and hyperthermia complicated fluid management during the first few hours
- Cardiac procedure with CPB result in fluid sequestration into interstitial compartment and relatively hypovolemia in to intravascular fluid
- CVP, Arterial blood pressure, echocardiography are frequently utilized
Fluid management

- Goals: maintain good osmotic pressure and hemoglobin level above 9g/dl
- Fluid balance must be negative
Hypotension

- Post operative cardiac surgery hypotension is frequently occurs
- Systematic evaluation of preload, afterload, contractility and heart rate should be performed
- The inflammatory response to cardiopulmonary bypass is more frequent cause of hypotension
Hypertension

- Rapid decision and treatment
- Cause
  - Pain
  - Hypothermia
  - Hypercarbia
  - Hypoxemia
  - Hypoglycemia
  - Intravascular volume
  - Withdraw preoperative antihypertensive drug
  - Cerebral edema, stroke
  - Urinary retention
bleeding

- Surgical cause
- Bleeding diathesis
  - Platelet dysfunction
  - Fibrinolysis
  - Persistent heparin effect
  - (management preoperative anti platelet agent)
Cardiac tamponade

- Excessive mediastinal bleeding with inadequate or non active drainage
- Sudden massive bleeding
- Diagnosis
  - echocardiography
Management of critically ill patient for cardiac and other kind of surgery still have some difficulties

Safe anesthesia and post operative care need to improve

With international cooperation may helpful to develop Surgical ICU management in Lao PDR