ANESTHETIC IMPLICATIONS OF VIDEO-ASSISTED THORACOSCOPIC SURGERY IN INFANTS AND CHILDREN

Dr. Foudan Shaltout, MD

Video-assisted thoracoscopic surgery (VATS) was first introduced as a surgical technique in 1991. It has become the primary approach for a wide variety of intrathoracic problems previously addressed through open thoracotomy (lung biopsy, lobectomy, pneumonectomy, PDA legation, repair of congenital diaphragmatic hernia and tracheoesophageal fistula). Goals of anesthesia include: maintaining airway reactivity, optimizing gas-exchange, maintaining stable cardiovascular function and providing adequate pain relief in postoperative period. Thoracoscopic surgery should be performed with the child in a position that allows for greatest access to the area of interest and uses gravity to aid in keeping the uninvolved lung out of field of view. One-lung ventilation is usually required to allow better view of operative field and avoid possible injury to lung tissue. Methods for one-lung ventilation are: endobronchial intubation using a tube 0.5 mm smaller in ID than that appropriate for age, bronchial blockers as balloon-tipped catheter or Fogarty embolectomy catheter, univent tube and double lumen tube in older children. CO2 insufflation can induce, in addition to hypercarbia, hemodynamic instability and hypoxia as a result of the increase in intrathoracic pressure. To avoid this, CO2 should be insufflated at as slow a rate as possible (1L/min) to produce desired compression of the lung. Methods to improve oxygenation during OLV are: high FiO2, tidal volume 8-12 ml/kg, CPAP to operative lung, PEEP to dependant lung and high frequency jet ventilation at low driving pressure and re-inflation of non-ventilated lung.