Original Research Paper

Anaesthesiology

EARLY DETECTION AND MANAGEMENT OF INTRA-OPERATIVE PULMONARY EMBOLISM IN A PATIENT UNDERGOING REVISION TOTAL HIP REPLACEMENT(THR)

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INTRODUCTION:

Preoperative pulmonary emboli in traumatic patients are common. The incidence of thromboemboli events in trauma patients is about 63%. Timely diagnosis and treatment can improve patient's survival. Pulmonary embolism can be difficult to detect prior to hemodynamic instability. Massive pulmonary embolism manifest as physiologic instability,hypoxemia,unresponsive to conventional therapy,cardiac arrest. Treatment includes emergent pulmonary embolectomy,thrombolysis ,extra corporal membrane oxygenation (ECMO). Here I present a case report of intra operative pulmonary embolism and the anaesthetic goal is to evaluate the available modality for early detection and supportive care after hemodynamic collapse.

CASE REPORT:

A 84 year old female with history of slip and fall at home 8 months back , sustained right sided acetubular fracture involving femoral head ,Underwent total hip replacement 3 months back,Which was uneventful, now planned for revision total hip replacement. Preoperative evaluation was unremarkable except for oxygen saturation <95%, basal metabolic equivalents were less than 4.Apart from cataract extraction the patient had no surgery history.she denied any drug allergy.CT showed comminuted and displaced fracture of right acetubular and the right femoral head was displaced superiorly and laterally .Patient was assessed and given fitness for surgery under ASA III.

ANAESTHESIA TECHNIQUE :

Prior to entering to OR , patient vitals were BP: 130/80 mmhg, PR: 106/ min. Spo2: 94% in room air, RR: 18 cycles / min, Temp : 98.6 F. Plan of anaesthesia was epidural anaesthesia with General anaesthesia. Patient was pre – medicated with Inj. Emeset 4mg IV,Inj Fentanyl 100mcg IV. Patient was induced with Inj. Propofol and succinyl choline and intubated with 7 size inner diameter endo trachea tube.Bilateral air entry checked and is equal .BP- 130/80 mmhg, PR- 108 / min , Spo2 – 99 – 100% . Plane of anaesthesia was maintained with oxygen , Nitrous oxide in ratio 1:1,sevoflurane of MAC 0.8,Inj. Atracurium given incrementally in titrated dose.Patient in left lateral position, L1 – L2 space identified by using 18G Tuohy epidural needle , Epidural space entered and confirmed using LOR technique and fixed at 8cm, epidural catheter tip at level of T12-L1,B/L tube entry checked and equal.Epidural was activated with 4ml of 0.125% bupivacaine, vitals stable.After 1 hour,intra operatively while reeming the femur , patient became hypotensive, systolic blood pressure in 80s, MAP < 65, ETCO2 decreased frm 30 to 12 and saturation dropped to 85% - 86%.Hypotension was no longer responsive to Phenylephrine or ephedrine.Right External jugular vein secured by 18 G venflon. Fio2 was increased from 50 % to 100%. Nor- epinephrine 0.05mcg /kg/min and epinephrine 0.05mcg/kg/min infusions started. ABG showed,pH 7.0,PCO2-64 mmhg,PO2-70mmhg, Hco2-14 mmhg. By this point surgery was completed and patient positioned to supine Hemodynamics monitored , BP : 100 / 60 mmhg , PR: 147 / min, Spo2: 95%. Patient was shifted to ICU for elective ventilation, and further management

DISCUSSION :

Post op ECHO showed RV strain pattern. Inj.Adrenalin tapered and stopped and Inj.Dobutamine 5mcg/kg/min infusion started along with Inj. Nor adrenalin infusion. On post operative day 3, ionotropes and vasopressor infusions were tapered and stopped and patient was gradually weaned from endotracheal tube.Epidural catheter was removed on post operative day 3. In thromboembolism[7], ETCO2 is significantly lower than normal due to the reduction of pulmonary perfusion and increased alveolar dead space that reduces the amount of CO2 exhaled from the lungs, so venous carbon dioxide pressure (PvCO2) increases and all of these changes lead to an increase in arterial CO2-ETCO2 gradient.This helps in correctly diagnosing pulmonary embolism, especially silent pulmonary embolism . Pulmonary angiogram is the gold standard for diagnosis. ECMO[9, 10]are modality of treatment for patients with massive pulmonary embolism and resulting shock.

CONCLUSION :

Early detection and treatment of pulmonary embolism are essential to improve morbidity and mortality of patients with traumatic injury. ETCO2 is a non invasive method used in the emergency department as an indicator for measurement of CO2 in many clinical situations. Therefore capnography must be considered as an essential tool in patients undergoing surgery.

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