Case Report

Epidural Anaesthesia & Analgesia For Severely Cardiac Compromised Patient With Pregnancy

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Abstract

Epidural anaesthesia is a very popular method of anaesthesia and post-operative analgesia for cardiac compromised pregnant patient all over the world. In our case Mrs. Akhi 34 years pregnant women admitted in KYAMCH on 13.03.2017 with 37 weeks pregnancy. She has a long history of Rheumatic fever followed by Rheumatic heart disease, severe MS (mitral stenosis) after that she was operated CMC (Close Mitral Commissurotomy) in 2012. She was admitted with respiratory distress at KYAMCH, with pregnancy on December 2016. After that she was under close supervision of cardiac surgery and Gynae and Obstetrics department. After admission on 13.03.2017 she was evaluated by the department of anaesthesia and graded as ASA (American Society of Anaesthesia) class-4. And selected for routine case of caesarean section on 14.03.2017. Operation was done under epidural anaesthesia and post-operative analgesia was maintained by epidural catheter.

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Inroduction

Epidural administration is a medical route of administration in which a drug or contrast agent injected into the epidural space of the spinal cord. Techniques such as epidural anaesthesia and epidural analgesia employ this route for administration. Epidural techniques frequently involve injection of drugs through a catheter placed into the epidural space. The injection can result in a loss of sensation of pain by blocking the transmission of signals through nerve fibers near the spinal cord. Epidural anaesthesia is a safer technique then SAB (Sub Arachnoid Block) which causes profound hypotension and may cause PDPH (Post Dural Puncture Headache). Post-operative analgesia can also be maintained through epidural catheter.

Case Report

Mrs Akhi, age 34 years female, wife of Mr. Monirul Islam from village -Nagda, Post Office -Chadna, Police Station -Atghoria, Distrect -Pabna admitted in KYAMCH on 13.03.2017. At Gynae and Obstetrics department with the complaints of Second gravida, 37 weeks of pregnancy for routine caesarean section. She was a known case of post CMC. On examination her pulse was 64 beats/minutes, Blood Pressure 110/70 mmHg, Temperature 98^0F, Respiratory rate 18 beats/minutes.

Before starting the procedure right internal jugular vein catheter (CV catheter) was introduced by modified Seldinger technique. Infusion Hartman's solution was started at the rate of 20-25 drops/minute. Injection Ceftriaxone 1gm i/v given slowly before the procedure was started.

With all adequate aseptic precaution L3-L4 space was identified and marked. 40mg of 2% Lignocaine was infiltred. 18G Epidural (Tuohy) needle was introduced, piercing the skin and subcutaneous tissue, reaching the epidural space and confirmed by the introduction of air through epidural needle, loss of resistance was found. Then epidural catheter was introduced through epidural tuohy needle. A bolus dose of bupivacaine 0.5% (10ml) 50mg with Lignocaine 2% (5ml) 100mg and 50 microgram of fentanyl was given through the epidural catheter.

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Per-operative patient was monitored by a invasive monitor. Vitals sush as pulse, BP, O_2 saturation meticulously monitored. Caesarean section was done uneventfully and without any major haemodynamic change.

Post-operative analgesia was also maintained through epidural catheter by continuous infusion pump. A dose of 20 ml (100mg) 0.5% bupivacaine with 2ml (100 microgram) fentanyl and rest 28 ml normal saline in a 50 ml syringe at the rate of 2-3 ml/hour was given next 72 hours.

Investigation

FBS - 5.6 mmol/L
CBC - Hb%10.6 gm/dl, Platelet count - 212 x 109/L, Total count of WBC 12.19 x 109/L, Neutrophil - 71.60%, Lymphocyte - 19.40 %, Monocytes - 4.70%, ESR - 44 mm in 1st hour.
Serum creatinine - 63.88 micromol/L,
T4- 1.2 ngm/dl, TSH-0.5 micro IU/ml.
HbsAg-Negative, Anti HCV-Negative,Anti HIV-Negative, VDRL-Negative.
Urine R/M/E- Normal.
ECG- Sinus Rhythm.

USG- Pregnancy Profile

Gravid uterus contain a single viable foetus with cephalic presentation.
Foetal cardiac pulsation and foetal movements are present and regular.
FHR 145 beats/minutes.
BPD- measures 9.0cm corresponding to 37 weeks of gestation.
FL- measures 6.8cm corresponding to 37 weeks of gestation.
Placenta is anterior and away from central OS.
Amniotic fluid volume is adequate, AFI- 15cm.
Foetal weight - 3000 +_ 500 gm.
EDD - 31.03.2017 +_ 1 week.
Impression- Single live pregnancy of about 37 weeks with cephalic presentation.

Epidural Set

Epidural Set with Catheter

Echocardiography

Status - Post CMC.
Rheumatic Heart Disease.
Mitral valve area - 1.6 cm2.
Mitral regurgitation - Gr -I
Normal LV and RV systolic function.

Discussion

Epidural anaesthesia is the most popular method of anaesthesia in a cardiac compromised pregnant patient. It is also cost effective because post-operative pain can be managed solely by epidural catheter. International consensus on neuroaxial anaesthesia and analgesia (2007) revised and accepted for use of polypharmacological approach for treatment of pre-operative and post-operative pain and relaxation. Extensive research is still undergoing regarding epidural anaesthesia and analgesia with local anaesthetic and various adjuvant added to them. In this case we used Inj. 2% Lignocaine, Inj. 0.5% Bupivacaine and inj. Fentany[1]. In epidural anaesthesia usually sensory blocked occurs preserving the motor blocked. Lumber epidural anaesthesia is practiced most frequently for lower abdominal, perineal, and lower limb surgery. Lumber[2-3] or [3-4] space is preferred for lumber epidural anaesthesia and analgesia. A good quality of anaesthesia can be achieved for a duration of 4-6 hours by a single shot of anaesthesia. Incremental dose can be given through epidural catheter in situ if needed to prolong the duration of anaesthesia. Addition of adjuvant enhance the effectiveness of local anaesthetic agent. Epidural anaesthesia and analgesia is very effective to reduce perioperative physiological stress response and unpleasant sensation of heaviness of lower limb. It is a almost impossible to develop PDPH in epidural anaesthesia which is a very common complication of SAB. In epidural anaesthesia there is less chance of

development of hypotension also which commonly occurs in SAB. In this case we used Lumber[3-4] intervertibral space to induce epidural anaesthesia with epidural catheter in situ. A healthy baby was delivered under epidural anaesthesia uneventfully. Total Post-operative period analgesia was maintained by the epidural catheter. After re-evalution by the department of Cardiac surgery and Gynae & Obstetrics department, the mother and her baby was discharge on 18.03.2017.

Conclusion

In the field of regional anaesthesia with the preservation of motor block the epidural anaesthesia is a safer method of anaesthesia for maintaining the haemodynamics stable in a cardiac compromised patient. With the revolution of modern anaesthetic technique epidural anaesthesia and analgesia can be applied to different surgical procedure in the field of surgery, orthopaedics, Gynae and obstetrics etc.

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