

Case Report

CASE REPORT ON CARDIAC ARREST UNDER SPINAL ANESTHESIA IN A CASE OF CAESAREAN SECTION

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ABSTRACT:

A 33 years old multiparous woman was admitted in Dhaka National Medical Institute Hospital with the complaints of 37 weeks pregnancy and less fetal movement. She was a known case of DM & had a previous history of caesarean section. She had undergone an emergency caesarean section under spinal anesthesia. Patient developed sudden severe hypotension with respiratory distress within 3-4 minutes after the anesthetic procedure, while she was in supine position. Subsequently she developed cardiac arrest. She was managed by cardio-pulmonary resuscitation which included prompt tracheal intubation, ventilation with 100% oxygen, cardiac massage & inotropic drug. Cardiac arrest was revived. The operation was completed under general anaesthesia & was reversed uneventful. She was kept in CCU under close monitoring. The patient was discharged on her 7th postoperative day with a healthy baby and a healthy physical status.

Key words: Cardiac arrest, Spinal anaesthesia, Supine hypotensive syndrome.

CASE REPORT:

A 33 years old multiparous woman weighing about 70 kg & height of 147 cm was admitted in DNMIH with the complaints of 37 weeks pregnancy and less fetal movement. She was a known case of DM & a past history of LUCS five years back. She took regular antenatal check up. She was on anti-diabetic treatment & was taking Inj. Actrapid HM in a dose of 12+6+10 IU for the control of her high blood sugar. On admission her pulse rate was 84/min, B.P- 140/90 mm of Hg. She was mildly anaemic, nonicteric, nonasthmatic, obese & oedematous. Though her BP was 140/90 mm of Hg on single record & her urine albumin was trace in amount, she did not take any anti-hypertensive. As the patient complained less

fetal movement, which was clinically confirmed, she had undergone an emergency caesarean section on the day following her admission. Patient was slightly distressed because of her large abdomen with short stature. She gave history of some problem during her previous caesarean section but could not explain it properly. She was preloaded with 500 ml Hartmann solution before the anaesthetic procedure. Then she was administered spinal anesthesia with 2ml 0.5% Bupivacaine HCl heavy at the level of L3-4 interspinous space in sitting position. Patient was put in supine position with a wedge under her right hip. Patient complained respiratory distress immediately after putting the patient in supine position & her B.P started to fall. We used Inj ephedrine 15-20mg gradually & try to maintain oxygenation by face mask with Bain circuit.

But the condition of the patient was deteriorated and eventually she developed apnoea with cardiac arrest. We immediately intubated the patient & ventilated with 100% oxygen & gave cardiac massage. She was given Inj. Adrenalin 1mg IV immediately. Inj Oradexon 5 mg was also given. After a few seconds patient cardio-respiratory system became activated & then we maintained anesthesia with short acting muscle relaxant (suxamethonium). The surgeon was requested to proceed with the operation.

She delivered a healthy female baby weighing about 4.5 kg. The baby cried immediately after birth. Peroperatively her condition was stable, her pulse was 100-110/min, B.P-120/80 mm of Hg, chest was clear. After the operation she recovered very smoothly with no residual features of any cerebral hypoxia or anoxia. As she was tried to remove her tube, we extubated her very gently. Her blood sugar was 5.2mmol/L immediately after the surgery. After consultation with cardiologist patient was

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transferred to CCU for close monitoring. Her E.C.G showed normal cardiac activity with no sign of ischaemia. After 24 hours patient again transferred to obstetric department. As she had no complained about her physical & mental soundness, she was discharged on her 7th post operative day.

DISCUSSION:

The factors which may cause or precipitate cardiac arrest during spinal anesthesia in a case of caesarian section are of two broad heading: First, pitfalls remains in the anaesthetic procedure. Second, patho- physiological changes in obstetric patient. At first we must take informed consent from the patient after explaining the anaesthetic procedure. So, we can avoid the chance of noncardiogenic syncopal attack. We must take history of previous anaesthetic procedure¹. In this case patient gave history of some unexplained problem. Patient must be preloaded with adequate fluid (10-20 ml/kg body wt within 30 minutes)². She was preloaded inadequately. The dose of the anaesthetic drug must be adjusted according to patient height, weight & co-existing disease (HTN, DM). Drug should be injected slowly (1 ml every 5-10 seconds)³. The interspinous space preferably L3-L4. Then position of the table (5⁰ head down tilt) & wedge should be given under the right hip (>15⁰)^{4, 5}.

Hansen noted that 12% of term women had severe hypotension & collapse while supine position due to compression of inferior venacava by gravid uterus, decrease venous return & right atrial pressure. Some report show severe bradycardia also. Lees & co-workers linked this supine hypotensive syndrome with vasovagal syncope. Holmes reviewed the literature from the 1930s to 1950s on maternal mortality due to caesarean section under spinal anaesthesia. Problem occurred soon after the patient was moved into supine position due to sympathetic block as well as supine hypotensive syndrome. Holmes suggested that unappreciated compression of the venacava was the likely cause, rather than other possibilities. The risk was present even without sympathetic block and patient with severe pre-operative supine hypotension died after induction of general anaesthesia⁶. So, if we could not manage the hypotension that lades to cardiac arrest.

In pregnancy huge uterine enlargement reduce functional residual capacity as well as residual volume of lungs⁷. Rapid desaturation occurs in term

specially in obese pregnant woman which may cause apnoea subsequently cardiac arrest due to hypoxia. So we should manage it with proper oxygenation.

Pregnancy may complicate with some disorder like Pregnancy Induced Hypertension (PIH), Gestational Diabetes Mellitus (GDM), bronchial asthma etc. In case of PIH patient must be adequately preloaded with intravenous fluids, as because there is more chance of hypotension than a normotensive patient due to hypovolemia & antihypertensive drugs effect. Long term diabetes itself cause autonomic neuropathy which leads to decrease sensitivity or non responsiveness of alpha receptors. So, during hypotensive attack when we used ephedrine it will not work properly⁸.

There was some reversible cause of cardiac arrest described as the four Hs & Ts of resuscitation⁹.

Hs

- Hypoxia
- Hypovolemia
- Hypo/ Hyperkalaemia & metabolic disorder
- Hypothermia

Ts

- Tension pneumothorax
- Temponade(cardiac)
- Toxic/Therapeutic disturbance
- Thromboembolic & mechanical obstruction.

In this case, patient was short, obese, diabetic & had history of some unexplained problem during her previous anaesthetic procedure and was preloaded inadequately. So, factors in favour of this catastrophe's were overweight with large baby (4.5kg) which create a hypotensive as well as hypoxic drive when she was in supine position under spinal anesthesia. Hypotension was aggravated due to inadequate preload. Vasopressor drugs (ephedrine) did not function well because of non responsiveness of alpha receptors due to her prolonged DM. Previous unexplained factors might have some contributing cause like idiosyncrasy of local anesthetic drugs.

So, if we assess properly we can avoid this catastrophe as well as can be managed cardiac arrest if it has already happened.

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