ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 11 | November - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ANESTHETIC MANAGEMENT IN EMERGENCY CESAREAN SECTION IN OPERATIVE CASE OF TETRALOGY OF FALLOT AND VENTRICULAR SEPTAL DEFECT UNDER COMBINED SPINAL EPIDURAL ANESTHESIA: A CASE REPORT.

Anaesthesiology

Dr. Rajmay Chaudhari 2nd Year Resident , Gaims,bhuj,gujarat
Dr. Krishna Kara Assistant Professor, Gaims, Bhuj, Gujarat
Dr. Harvi Ardeshana 3rd Year Resident, Gaims, Bhuj, Gujarat
Dr. Abhisar Chaudhari* 1st Year Resident, Gaims, Bhuj, Gujarat *Corresponding Author

ABSTRACT

Managing congenital heart disease (CHD) during a cesarean section (C-section) involves several critical considerations to ensure the safety of both the mother and the baby. For a patient with Tetralogy of Fallot (TOF) undergoing a cesarean section (C-section), careful management is crucial due to the complexities of the condition.A 32 year old female G2P0L0A1 with 36 weeks of pregnancy came to department of obstetrics and gynecology. In this report, we present emergency cesarean section due to active labor in patient with operated case of tetralogy of fallot under combined spinal epidural anesthesia.

KEYWORDS

Tetraology of fallot, ventricular septal defect

INTRODUCTION

Tetralogy of Fallot (TOF) is characterized by a ventricular septal defect, aortic overriding, pulmonary artery obstruction, and right ventricular hypertrophy. It is the most common cyanotic congenital heart defect in pregnancy. Anesthetic management requires understanding pregnancy-related physiological changes and the cardiovascular status. This case report describes using combined spinal epidural anesthesia for cesarean surgery in a 36-week pregnant woman with corrected TOF.

Case Study

A 32 year old female weighing 55 kg, G2P0 L0A1 came with history of amenorrhoea of 36 weeks to Obstetrics & Gynecology department . Patient came in active labor and therefore assessed for emergency lscs. Patient was a known case of cardiac anomaly TOF since 5 year of age.No other comorbidities were present.Patient was undergone intra cardiac repair with VSD closure with trans annular patch repair before 5 years under general anesthesia , and on Tab aspirin 75mg and digoxin 0.25mg since then,which was stop after 1st trimester.There was no history of any cynosis, respiratory tract Infection, fever ,palpitations, syncope, chest pain, pedal edema or PNVD.

On examinations. Pulse rate was 74/min ,irregular in rythm with a blood pressure of 114/70 mm/Hg and oxygen saturation was 99% on Room air ,respiratory rate was 16/min. Respiratory and cardiovascular system examination was normal with no foreign sounds or crepitations were present.Airway and spine was normal.All routine blood investigation were within normal limits.

ECG was showing multiple VPC IN V1V2V3 and M pattern in aVF and V4. 2D ECHO was showing ejection fraction of 50-55% with good RV function, mild TR, moderate PS,moderate turbulence across Right ventricular outflow tract

Anesthetic Management :

The patient was transferred to the operating room, peripheral IV access was secured with a 20G cannula in both forearms, and a ringer lactate solution was started. Inj. ondansetron 4mg iv given. NIBP, Spo2, HR and ECG were monitored during surgery. During the operation, the patient received oxygen at a rate of 6 l/min using a face mask. The patient was placed in sitting position and following strict aseptic precautions,Epidural catheter was inserted at level L2-L3 using 18 G tuohy needle via hanging drop technique and fixed at 9 cm. Spinal anesthesia was administered into the L3-4 intervertebral disc space with a 26G quincke type spinal needle, after clear and free flow of CSF, hyperbaric bupivacaine 0.5% 1.0 ml + inj. Fentanyl 15mcg (0.3 ml)given ,Sensory blockade till T8 was achieved and epidural test dose of inj. Lignocaine + Adrenaline 1% 3 ml was given and after 10 minutes Inj. 2% loxicard 5ml was given epidurally.After baby delivered, Inj. Oxytocin 20 IU was added to the drip.Inj. Fentanyl 40mcg was given IV as patient was very anxious .Blood pressure and heart rate were maintained between 110-100 mm/hg and 70-80/**min** respectivelyand sp02 of 100% was maintained during the operation. Sufficient urine output wa**s** maintained. Postoperative vital signs were also normal.

DISCUSSION :

Tetralogy of Fallot (TOF) is the most common cyanotic congenital cardiac defect overall. Accounts for 5% of congenital heart disease in pregnant women. Women with TOF will produce pulmonary regurgitation and can become symptomatic during pregnancy .

They are also at risk of producing arrhythmias, endocarditis or right ventricular failure.

Anesthetic Goals:

- Watch for arrhythmias and pulmonary hypertension
- Continuous monitoring, 12 lead ECG
- Avoid decrease in SVR, worsens right-to-left shunt severity.
- Maintain adequate intravascular volume and venous return. Patients with corrected TOF may show various arrhythmias due to surgical injury. High filling pressures are needed in right ventricular compromise to enhance performance and ensure pulmonary blood flow. Neuraxial analgesia in early labour limits increases in pulmonary vascular resistance and right-to-left shunting. Emergency C-section with tetralogy of Fallot benefits from CSEA over general anesthesia for better stability, reduced stress response, enhanced awareness, improved recovery, and less need for additional medication.

An emergency C-section with tetralogy of Fallot often benefits from combined spinal-epidural anesthesia (CSEA) over general anesthesia due to better hemodynamic stability, reduced stress response, enhanced awareness, improved recovery, and less need for additional medication.

In emergency C-section for tetralogy of Fallot, CSEA offers advantages over solo epidural anesthesia due to faster onset of anesthesia, more effective analgesia, lower doses of local anesthetics, and flexibility in managing anesthesia.

Management of parturient with cardiac disease requires joint effort by obstetrician, cardiologist, and anesthesiologist. Advancements in obstetric care and cardiac surgery allow safe surgical delivery for many patients with cardiac disease. Skillful anesthesiologists can respond to intraoperative problems immediately.

Figure 1: Scar Of Operated Tof

Figure 2: Intraoperative Vitals Parameters

CONCLUSION:

Management of a parturient with cardiac disease requires an individualised approach with a joint effort by a team of obstetrician, cardiologist and anesthesiologist. With vast advancements in obstetric care, improvements in cardiac surgery, many patients with cardiac disease can now be safely delivered surgically by skillful anesthesiologists who are aware of the common potential intra operative problems and the ability to respond to undesired events immediately.

REFERENCES:

1. Diaz-Frias J, Guillaume M. Tetralogy of Fallot. [Updated 2022 Jan 18]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from:https://www.ncbi.nlm.nih.gov/books/NBK513288/
2. Meijer JM, Pieper PG, Drenthen W, Voors AA, Roos-Hesselink JW, van Dijk AP, et al. Pregnancy, fertility, and recurrence risk in corrected tetralogy of Fallot. Heart 2005; 91(6): 801–805.https://doi.org/10.1136/hrt.2004.034108
3. Kaur H, Suri V, Aggarwal N, Chopra S, Vijayvergiya R, Talwar KK, et al. Pregnancy in patients with tetralogy of fallot: outcome and management. World J PediatrCongenit Heart Surg 2010;1(2): 170–174. https://doi.org/10.1177/2150135110369685
4. Hink E, Bolte AC. Pregnancy outcomes in women with heart disease: experience of a tertiary center in the Netherlands. Pregnancy Hypertens 2015; 5(2): 165–70https://doi.org/10.1016/j.preghy.2014.12.001
5. Warnes CA. Pregnancy and delivery in women with congenital heart disease. Circ J 2015; 79(7): 1416–21.https://doi.org/10.1253/circj.CJ-15-0572
6. Ramage K, Grabowska K, Silversides C. Association of Adult Congenital Heart Disease with Pregnancy, maternal, and neonatal outcomes. JAMA Netw Open 2019; 2(5): e193667.https://doi.org/10.1001/jamanetworkopen.2019.3667
7. Wang K, Wang X, Yu H, Liu X, Xing A, You Y, et al. A single-center experience with 12 consecutive cases of pregnancy among patients with membranous ventricular septal aneurysm.BMCPregnancy Childbirth 2018; 18(1): 8.https://doi.org/10.1186/s12884-017-1646-4