Content available at: iponlinejournal.com

Indian Journal of Obstetrics and Gynecology Research

Journal homepage: www.innovativepublication.com

Case Report

Wolff parkinson white syndrome in third trimester of pregnancy: A case report

Suganya Devi. A[1,*], Rashmi Rao[1]

[1] *Salem Polyclinic Hospital, Salem, Tamil Nadu, India*

ARTICLE INFO

Article history:
Received 17-09-2019
Accepted 16-10-2019
Available online 21-02-2020

Keywords:
WolffParkinsonwhite syndrome
Supraventricular tachycardia
Adenosine
Pregnancy
Caesarean section

ABSTRACT

Arrhythmias are the one of the most common forms of cardiac disease during pregnancy. Supraventricular tachycardia is the most common type of sustained arrhythmia presenting in pregnancy. During pregnancy, this can be difficult to diagnose as common symptoms like palpitation, shortness of breath and syncope. We presented our cases of supraventricular tachycardia in pregnancy during antenatal period. Risk factors for the development of supraventricular tachycardia and use of antiarrhythmic drugs management, during pregnancy and at Caesarean section are discussed. We recommend the use of adenosine as first line therapy.

1. Introduction

The pre excitation syndromes incidence in the usual population is rare, which is ranging from 0.01 to 3%, but the associated tachyarrhythmia's occurrence is frequent and ranges as of 10% in young adults to 30% in the elderly.[1] WPW syndrome is rare, and it is characterized by the presence of an accessory pathway that predisposes to tachyarrhythmia and sudden death. It is potentially at increased possibility of ventricular arrhythmias. It is most common in the younger age group without any underlying structural heart disease[2]

2. Case Report

A 20 year old female, with a BMI of 25.8 (height – 155cm & weight of 62 kg), G2 P1 L1 @ 34 weeks + 2 days of gestation, her first pregnancy had an uncomplicated antenatal period and delivered vaginally. Now she presented with palpitation, shortness of breath and fatigue. Her pulse rate was 180 beats per minute (bpm). Her first and second trimester was uneventful. She had no past history of tachycardia, heart disease or other medical illness. Thyroid function tests were performed which were normal. Her routine investigation, blood pressure, Spo2 was normal. On auscultation her chest was clear and it was considered that she was not in acute pulmonary oedema. No cause for the tachyarrhythmia other than pregnancy was identified. Electrocardiographic (ECG) was done, findings of Wolff Parkinson white (WPW) syndrome include short PR interval, wide QRS complex and delta wave. Non stress test (NST) was done, which was reactive. Fetal heart rate was normal. 2d-echo was performed but no structural abnormalities were found. Conservative measure in the form of carotid massage and valsalva manoeuvre failed to correct the pulse. She was medically cardioverted with 6mg of adenosine intravenously bolus. The patient remained clinically stable throughout awake and talking with no symptoms and with a normal blood pressure of between 90-110 mm of hg systolic and 50-70mm of hg diastolic. The fetal heart rate was monitored throughout and remained normal. An urgent multidisciplinary meeting with obstetric, cardiology and anaesthetic team was held and planned for caesarean section. Because of concerns that induction of labour may exacerbate her problems, it was decided to deliver her by caesarean section. Because of the

* *Corresponding author.*
E-mail address: devi.arjunan@gmail.com (S. Devi. A).

https://doi.org/10.18231/j.ijogr.2020.024

advantages of spinal anaesthesia including less stimulation of sympathetic system, and absence of multiple drug usage, the decision was made to perform caesarean section under spinal anaesthesia after the patient was informed about the technique and her written consent was received. All anti arrhythmic drugs and defibrillator was kept ready to deal with any untoward events. The baby was born in good condition with normal cord pHs. Oxytocin 5 units were administered slowly after the delivery and placental expulsion. No further episodes of supra ventricular tachycardia (SVT) occurred either intraoperatively or in the immediate postoperative period. The patient was transferred to the primary intensive care unit for follow-up. Oral metoprolol, twice a day was commenced. Maternal pulse remained around 90 bpm. Following ECG monitoring, patient was stable and taken to the ward and was discharged home on metoprolol and followed up with the cardiologists.

3. Discussion

First described of Wolff Parkinson white syndrome in 1930 and it is noted in pregnant women around 0.1% - 2%. Although it is asymptomatic, in a few percentage of cases leads to significant morbidity and rarely mortality.[3] Supraventricular tachycardia (SVT) is defined as intermittent pathological and usually narrow complex tachycardia >120bpm which originate above the ventricle excluding atrial fibrillation, flutter and multifocal atrial tachycardia.

The heart rate as quick as 180-240 bpm in SVT and it is very tricky to discriminate between rapid sinus tachycardia and supraventricular tachycardia. If there is increase in heart rate in WPW syndrome, it will bring on unidirectional block in re-entrant pathway and trigger reciprocating atrioventricular tachycardia.[4] In pregnancy, physiologically increase in heart rate which leads to decrease in PR, QT and QRS intervals. Left axis shift noted in ECG due to physical effect of gravid uterus. In WPW, ECG findings include short PR interval (<120msn), wide QRS complex (>120msn) and delta wave.[2]

In pregnancy, the treatment for SVT is complicated due to changes in physiology and fetal concern and is based on a number of factors which include the gestational age, signs and symptoms and hemodynamic status.[5] In asymptomatic patients, Treatment is not required and there is no increase in chance of peri -operative paroxysmal supraventricular tachycardia (PSVT). The most commonest form of SVT 's are benign and it will managed with vagal stimulation and valsalva manoeuvre, though some of the SVT 's will require further management.

The obstetric play an important role in understanding the impact of any management on the fetus. Although, maternal condition takes place all the times, always to know the adverse of the fetal outcomes which associated with different treatment in vital. In period of organogenesis, precaution should be taken with antiarrrhythmic treatment which might have an effect on the fetus.[6]

In acute SVT, the most commonly used three antiarrhythmic drugs are adenosine, calcium channel blockers (verapamil) and beta blockers. Many evidence showed that adenosine and verapamil are safe and effective in pregnancy.[5] In pregnancy, some of the SVT successfully terminate with adenosine due to its transient heart block effect which causing a period of maternal asystole and SVT may also noted after its effect wears off.

Adenosine is quickly becoming first choice of drugs for termination of SVT. Adenosine, a naturally occurring purine nucleotide, transiently depresses sinus node activity and slows atrioventricular conduction, and is effectual in terminating SVT.[7] It is rapidly acting drug and half life of less than 10s. in our case it was managed with single dose adenosine of 6mg bolus. In pregnancy there is an increased in intravascular volume, the adenosine deaminase concentration, the enzyme responsible for degradation, declines, so dose of 6-12mg adenosine itself adequate. During adenosine infusion, monitoring of fetal heart rate must be done due to transient fetal bradycardia effect during infusion.[7]

If adenosine fails, other antiarrhythmics can be used in pregnancy with caution due to the risk of intra uterine growth restriction. In WPW syndrome, beta-blockers is agents of choice where AV nodal blocking drugs may leads to acceleration of conduction through the accessory pathway and arrhythmia being substained.[3] In Calcium channel blockers, especially verapamil is as effective as adenosine and it helps to converting an SVT to sinus rhythm. The side effects are peripheral vasodilatation and negative inotropy and it is very safe in pregnancy. Digoxin has been used in all the stages of gestational for maternal and fetal indication without causing harm. Amiodarone is perhaps best avoided because of its potential teratogenic effects and reports of fetal toxicity but again there are reports of its safe use during pregnancy.[7]

Synchronised electrical cardio version is considered safe and it is used as rare in pregnancy, used for severe cases of SVT resistant to failed medical management, particularly if hypotension develops. Monitoring fetal heart rate during maternal cardio version is advisable, due to risk of developing fetal bradycardia during or after the procedure and requiring for an emergency caesarean section. Direct electrical current shock delivered to myocardium should be synchronised with the peak of the QRS complex and it is used in all the stages of pregnancy without significant complication.[5]

During the pregnancy with malignant tachyarrhythmias, implantable device can be used successfully. In the treatment of bradyarryhthmias during pregnancy, temporary and permanent endocardial pacing can be used. Radiofrequency ablation is an authoritative and preventative treatment and is

preferably performed in postpartum period due to its high radiation exposure and should be done with experienced centres. [8]

4. Conclusion

Timely recognition of the woman's symptoms, acute diagnosis and multidisciplinary team management with obstetric, anaesthetic, cardiology, midwifery and critical care trained nursing staff can help out with the management of these women safely during intrapartum period.

5. Source of funding

None.

6. Conflict of Interest

None.

References

1. Guize L, Soria R, Chaouat JC, Cretien JM, Wove D, Lettenzey JY. Prevalence and course of Wolff-Parkinson-White syndrome in population of 138,048 subjects. *Ann Med Intern (Paris)*. 1985;136:474–489.
2. Yitkin E, Aslan DD, Ferlengez AG. Spinal anesthesic management of a wolff Parkinson white syndrome in a pregnant patient for caesarean section. *Anaesth Anaesth*. 2018;Available from: 10.15761/JAA.1000118.
3. Shora A, Gurkoo S, Farooqi A, Qazi M, Nisa W. anesthesic management of a wolff Parkinson white syndrome for caesarean section. *Intern J Anaesthesiol*. 2007;16(2).
4. Kounis NG, Georgem FACC, Zavras PJ, Papadaki GD, Kitrou MPS. Pregnancy-Induced Increase of Supraventricular Arrhythmias in Wolff-Parkinson-White Syndrome. *Clin Cardiol* . 1995;18:137–140.
5. Bircher CW, Farrakh S, Gada R. Supraventricular tachycardia presenting in labour: A case report achieving vaginal birth and review of the literature ; 2016,.
6. Luna CA, Gómez JM. Arrhythmia during pregnancy. *Rev Colomb Anestesiol*. 2009;37(3).
7. Robins K, Lyons G. Supraventricular tachycardia in pregnancy. *BJA: Br J Anaesth*. 2004;92(1):140–143.
8. Dennis AT, Gerstman. Management of labour and delivery in a woman with refractory supraventricular tachycardia ;.

Author biography

Suganya Devi. A Consultant

Rashmi Rao Professor and Senior Consultant

Cite this article: Devi. A S, Rao R. Wolff parkinson white syndrome in third trimester of pregnancy: A case report. *Indian J Obstet Gynecol Res* 2020;7(1):115-117.