MANAGEMENT OF AN OBSTETRIC PATIENT WITH PAROXYSMAL TACHYARRHYTHMIA

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INTRODUCTION

Cardiac disease remains the highest cause for indirect maternal deaths in United Kingdom[1]. Atrial fibrillation (AF) can manifest for the first time in pregnancy and the incidence is 27/100000[2]. AF in pregnancy without structural heart disease is rare. This is a case report of an obstetric patient we managed successfully, who was diagnosed to have paroxysmal AF and was only on as required medication.

CASE REPORT

A 25-year-old parturient in her fourth pregnancy presented to the anaesthetic clinic at 30 weeks of gestation. Paroxysmal AF without structural heart disease was diagnosed in her first pregnancy and she was on Bisoprolol and Flecainide on as required basis. Due to the potential risk of developing life threatening arrythmia with advanced pregnancy, it was decided to do an elective section before 37 weeks. She had a confirmed severe allergy to Morphine. At 17 weeks, subcutaneous enoxaparin 40mg daily was started. She was admitted at 36 weeks. She had an episode of paroxysmal AF on the day before admission with dizziness and chest pain, lasting 30 minutes and resolving spontaneously. All precautions were taken to avoid and treat AF. Defibrillator, intravenous Metoprolol, oral Bisoprolol and Flecainide were kept ready. Monitoring with ECG, non-invasive blood pressure and oxygen saturation were established. At the start her heart rate was 140 beats per minute and in sinus rhythm. Adequate level of anaesthesia was ensured following a subarachnoid block with 0.5% heavy Bupivacaine and Fentanyl. She was kept calm and comfortable throughout the surgery and was closely monitored for arrythmias throughout. She had no intra operative or immediate post operative complications. Non opioid analgesics and her routine antiarrhythmics were prescribed for post operative period. Daily visits were done during her stay in the post operative period and no complications were noticed. She was discharged on post op day three.

DISCUSSION

Managing this patient was a challenge for us since we could not predict the timing of developing any life-threatening AF and also because she was not on regular treatment.

- According to modified World Health Organization classification of maternal cardiovascular risk, AF is categorized under mWHOII, which stratify the risk as; small increased risk of maternal mortality or moderate increase in morbidity and the maternal cardiac event rate is 5.7–10.5%2.
- In the ESC guidelines, pre pregnancy counselling is advised for women with AF which she was complied with.
- Care during pregnancy and location for delivery should be a local hospital and once per trimester follow up visits during pregnancy is adequate according to the guidelines.
- ESC guidelines identify AF as a low-risk cardiac disease in terms of developing haemodynamic compromise at the time of delivery (class 1 C). Therefore, the recommendations shown in the table are advised.

Treatment strategies include:

- Acute management of an unstable patient - electrical cardioversion. This can be performed safely in all stages of pregnancy as it will not compromise foetal blood flow and carries a low risk for inducing foetal arrythmias or pre term labour.
- Acute management of stable patients - beta blockers - IV metoprolol can be used (5mg over five minutes) as chemical cardioversion.
- We were well prepared with above treatment for any emergencies.
- Termination of AF in stable patients with structurally normal hearts - Ibutilide or flecainide
- Long-term management - beta blockers are recommended for rate control and flecainide, propafenone or sotalol are recommended if AV nodal blocking agents fail.
- For rate control of AF if beta-blockers fail - Digoxin and verapamil
- Drug-refractory and poorly tolerated AF - catheter ablation with electro anatomical systems in experienced centres.

Following a literature survey, we did not come across any similar reports of managing an obstetric patient with paroxysmal AF who was not on regular treatment.

Risk for arrhythmia with haemodynamic compromise at delivery		**Level of surveillance[a]**	**Class[b]**	**Level[c]**
Low-risk	PSVT, AF, idiopathic VT, low-risk LQTS, WPW syndrome	1	I	C
Medium-risk	Unstable SVT, VT, those with an implanted ICD, VT and structural heart disease, Brugada syndrome; moderate risk: LQTS, catecholaminergic polymorphic VT	2	I	C
High-risk for life threatening arrhythmia	Unstable VT in structural heart disease/congenital heart disease, unstable VT/TdP in high-risk LQTS patients, short QT syndrome, high-risk catecholaminergic polymorphic VT	3	I	C

Descriptions of actions to be planned	**Surveillance level**		
	Low 1	**Medium 2**	**High 3**
Consult cardiologist	×		
Consultation with multidisciplinary team including arrhythmologists at specialized centre		×	×
Mode and location of delivery as advised by obstetricians	×	×	
Caesarean delivery recommended			×
Monitor cardiac rhythm (telemetry, external rhythm monitor)		(x)	×
Intravenous line		×	×
Arterial line			×
Prepare for intravenous administration of adenosine		×	
Prepare for intravenous administration of a beta-blocker		×	×
Prepare for intravenous administration of selected antiarrhythmic drugs			×
External cardioverter defibrillator at site		×	×
Delivery at thoracic operating theatre			×
Prepare for transfer to cardiac intensive care unit post-partum if needed			×

References

1. Marian Knight, Kathryn Bunch, Derek Tuffnell, et al. Saving Lives, Improving Mothers' Care Lessons Learned to Inform Maternity Care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2017-19. Healthcare Quality Improvement Partnership and National Perinatal Epidemiology Unit, University of Oxford; 2021:96.

2. Regitz-Zagrosek V, Roos-Hesselink JW, Bauersachs J, et al. 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy. European Heart Journal. 2018;39(34):3165-3241. doi:10.1093/eurheartj/ehy340