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Maternal, Anaesthetic and Neonatal Outcomes in Pregnant Women with Mechanical Prosthetic Heart Valves

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Introduction

Pregnant women with mechanical prosthetic heart valves (MPHV) are at significant risk of thromboembolic, haemorrhagic and cardiac complications. Maternal mortality of 9% and morbidity of 41% of the 58 women in the UKOSS study[1].

Methods

We conducted a retrospective review of all pregnant women with MPHV who had multidisciplinary team (MDT) input as per NICE/RCOG guidance over a 5 year period (2015-2019) in our tertiary unit. Maternal, anaesthetic and neonatal outcomes were evaluated as part of this audit.

Results

We identified 23 pregnancies of women with MPHV. Their demographics, mode of delivery, mode of anaesthesia, maternal and neonatal outcomes are highlighted in Table 1.

- Total of 18 live births (73%), with eight preterm deliveries were recorded (44%).
- Six had vaginal deliveries (26%)
- Two women had an epidural in labour and four women had remifentanil patient-controlled analgesia.
- Twelve women had a caesarean section (CS) (67%)
- Four emergency CS were performed; one had an epidural top-up for anaesthesia, three were performed under a general anaesthetic.
- nine of CS deliveries (75%) had invasive arterial line monitoring.
- All patients had Anti-factor Xa monitoring
- One patient had arterial thrombus in her arm, and one had a venous thrombus in her leg antenatally. Both pregnancies resulted in miscarriage.
- Two women had valvular thrombosis (8%). One needed emergency mitral valve replacement.

Table 1; Demographics and outcomes of women with mechanical prosthetic heart valves

	Mitral Valve (*12*)	**Aortic Valve (*11*)**
Mean Age (+- SD)	28 (4.7)	32 (4.2)
Mean BMI (+-SD)	27.7 (6.7)	27.3 (8.1)
Primiparous	5	2
Multiparous	7	9
Mode of delivery		
Vaginal	3 (+2 FDIU)	2
Assisted	0	1
Emergency CS	3	1
Elective CS	2	6
Mode of anaesthesia		
General Anaesthetic	3	2
Spinal	1	5
Epidural top-up	1	0
Maternal morbidity		
Abruption/APH	1	3
PPH (<500ml)	6 (out of 8 live births)	5 (out of 10 live births)
Mean blood loss (+SD)	914ml (751)	524ml (366)
Thromboembolism	2	1
Stroke	2	0
Neonatal outcomes		
Miscarriage	2	1
Stillbirth	2	0
Preterm	4	4
Mean birth weight	2162g	2353g
APGAR <7 @ 5min	1	1
NICU	4	4

BMI (body mass index), CS (caesarean section), APH (antepartum haemorrhage), PPH (post partum haemorrhage), NICU (neonatal intensive care unit)

Discussion

Our data highlights the significant maternal and foetal morbidity encountered in women with MPHV using a LMWH regime throughout the peripartum period. Awareness, education about adherence and compliance with anticoagulation regime is recommended in this cohort. Appropriate counselling, MDT input, increased surveillance in this patient group are necessary to decrease maternal morbidity in women with MPHV.

References

[1]Vause S, Clarke B, Tower CL et al. Pregnancy outcomes in women with mechanical prosthetic heart valves: a prospective descriptive population-based study using the UKOSS data collection system. BJOG 2017; 124: 1411 – 19.