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Aiming higher: More than healthcare

Managing postnatal VTE risk - a case report and exploration of literature

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Background

Venous thromboembolic events (VTE) are among the top three non-obstetric causes of maternal death in developed countries. Prevention with thromboprophylaxis strategies has been identified as a readily implementable means of reducing maternal mortality and mortality from VTE and are widely used. However, there is paucity of evidence in postpartum women without high risk factors.

Case

WS is a 45-year-old grand-multiparous (G9P9) woman. Her medical background includes Class II obesity (BMI 29) and 8 prior vaginal deliveries. Nil other significant history. She underwent an uncomplicated emergency cesarean section at late preterm gestation of 35+4 weeks for new IUGR finding on USS with abnormal antenatal CTG. At the time of discharge, the patient has a VTE risk score of 4 as per the Queensland maternity guidelines (Fig. 1) without any high-risk factors.

Antenatal risk factor score

Family history (1st degree relative) of unprovoked or estrogen provoked VTE	1
Single VTE provoked by surgery	3
Age > 35 years	1
Parity ≥ 3	1
Smoking (any amount)	1
Gross varicose veins	1
Current BMI 30–39 kg/m^2	1
Current BMI ≥ 40 kg/m^2	2
IVF/ART	1
Multiple pregnancy	1
Pre-eclampsia in current pregnancy	1
Immobility	1
Current systemic infection	1
Pre-existing diabetes	1

Postnatal risk factor score

Caesarean section in labour	3
Elective caesarean section	1
Prolonged labour > 24 hours	1
Operative vaginal birth	1
Preterm birth (< 37+0 weeks)	1
PPH > 1 L or transfusion	1
Stillbirth in current pregnancy	1
Caesarean hysterectomy	3

ALL	Mobilise early, avoid dehydration
2	**LMWH standard prophylaxis** • Until discharge
≥ 3	**LMWH standard prophylaxis** • 7 days (or longer if ongoing risk)

Fig. 1: VTE risk score calculator

She was discharged with 7 days of once daily 40mg SC Clexane alongside advice to mobilize regularly, hydrate well and utilize TEDS for 6 weeks. She presented 3 weeks post partum to the Emergency department with tachypnoea, chest pain, mild hypoxia O2 Sat 92% on room air) and low-grade fevers. CTPA demonstrated an occlusive right posterior segmental pulmonary embolism (PE) and secondary community acquired pneumonia (Fig. 2) with a reactive pleural effusion. Her ECG was normal. Inpatient management included IV Augmentin, respiratory physiotherapy. Therapeutic clexane was commenced and she was bridged over to Warfarin. She was discharged on day 5. WS was subsequently discharged with warfarin monitoring with the hospital-in-the-home team. She recovered well and the warfarin was ceased after 3 months following an outpatient review.

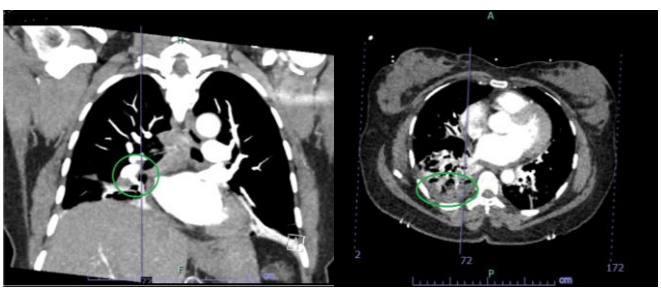

Fig. 2: CTPA images

Discussion

Pregnancy increases the risk of VTE for women by 5-10 times with the highest risk during the first 2 weeks of the postpartum period. Approximately 50% of the DVT burden occurs in this time. Low molecular weight heparin (LMWH) is the chemical prophylaxis of choice except in women with a history of heparin induced thrombocytopenia or with significant renal dysfunction. 10 in 10,000 pregnancies are affected by DVT and 3-5 in 10,000 pregnancies are affected by PE. It is thought that 50% of PE originate form a peripheral DVT. Unfortunately, studies do not demonstrate any significant change in the rate of PE incidence with administration of chemical prophylaxis in post-partum period nor is there evidence for the use of graduated compression stockings. Evidence for DVT prevention post cesarean originates from other surgical specialties that operate on older and more unwell patients.
Despite following the recommended guidelines, this patient experienced a pulmonary embolism. With the exception Victorian guidelines, it appears unlikely that this patient would be on anti-coagulation measures around the time of clot development (Fig. 3).

Guideline	Therapy
QLD	7 days of 40mg LMWH prophylaxis
NSW	7 days of 40mg LMWH prophylaxis
ACT	7 days of 40mg LMWH prophylaxis
VIC	6 weeks of 40mg LMWH prophylaxis
SA	No specific recommendation for LMWH prophylaxis
WA	10 days of 40mg LMWH prophylaxis
RANZCOG	5-7 days LMWH Prophylaxis
RCOG	10 days of 40mg LMWH prophylaxis
ACOG	No specific recommendation for LMWH prophylaxis

Fig. 3: VTE prevention recommendations by guidelines

Conclusion

At present there is limited evidence supporting the role of LMWH in preventing VTE risk. Due to the significant burden of disease, there has been wide-spread adoption of LMWH regimen without measurement of net benefit or harm. Due to the low absolute risk of VTE events and the small reduction of risk with LMWH regimen, a high-quality study would require enormous sample sizes to achieve adequate power to assess the benefits of a postpartum VTE prophylaxis regimen. Further research and revision of guidelines are vital to reduce morbidity and mortality from this condition.

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