Evaluation of prescribing practices for venous thromboembolism prophylaxis at a tertiary obstetric hospital

Jewel Johnson,[1] Sherine Tan,[1] Charis Lau[1]
1. Pharmacy Department, Western Health, St Albans VIC 3021

Background

Venous thromboembolism (VTE) is a rare but serious maternal complication, with VTE risk increased during pregnancy and in the first 6 weeks postpartum.[1] To prevent more serious outcomes, extended VTE prophylaxis with low molecular weight heparin (LMWH) is recommended for women with a high body mass index (BMI ≥ 30 kg/m^2) and additional risk factors for VTE.[2]

The criteria for postnatal extended VTE prophylaxis may vary between obstetric health services. LMWH is preferred due to its limited excretion into breastmilk,[3] with local guidelines recommending enoxaparin as the drug of choice.[4]

Aim

The primary aim of this study was to evaluate the appropriateness of VTE prophylaxis prescribing in postpartum women and compliance with local guidelines.

The secondary aim was to determine the requirement for pharmacist intervention to support accurate prescribing as per guidelines.

Method

Electronic medical records were retrospectively reviewed for all postnatal women discharged during August 2022. Data collected included: age; weight; BMI; mode of delivery; smoking status; obstetric and non-obstetric VTE risk factors; dose and duration of LMWH (if prescribed on discharge); and whether pharmacist intervention occurred. Risk factors were assessed against local guidelines to determine compliance with recommendations.

As per local guidelines, postnatal thromboprophylaxis with LMWH is indicated as outlined below:

- BMI 30 to < 40 + ≥ 3 risk factors: 2 weeks
- BMI ≥ 40 + vaginal birth + ≤ 1 risk factor: Nil
- BMI ≥ 40 + vaginal birth + ≥ 2 risk factors: 2 weeks
- BMI ≥ 40 + CS + 1 risk factor: 2 weeks
- BMI ≥ 40 + CS + ≥ 2 risk factors: 6 weeks

Risk factors	
Age > 35 years	Post-partum haemorrhage > 1L
Smoker	Caesarean section (CS)
Family history of VTE	Low risk thrombophilia
Gross varicose veins	Systemic infection
Immobility	Pre-eclampsia
Multiple pregnancy	Preterm delivery (< 37 weeks)
Stillbirth	Prolonged labour (> 12 hours)
Parity ≥ 3	

Results

During the study period, 516 postnatal women were discharged from the health service, with 158 of these patients identified as having a BMI equal to or greater than 30kg/m^2. Of these patients, 31.6% (50/158) met local guideline criteria for extended VTE prophylaxis on discharge.

Prescribing compliance
Prescribing was compliant with local guidelines for 90% (45/50) of patients (Figure 1).

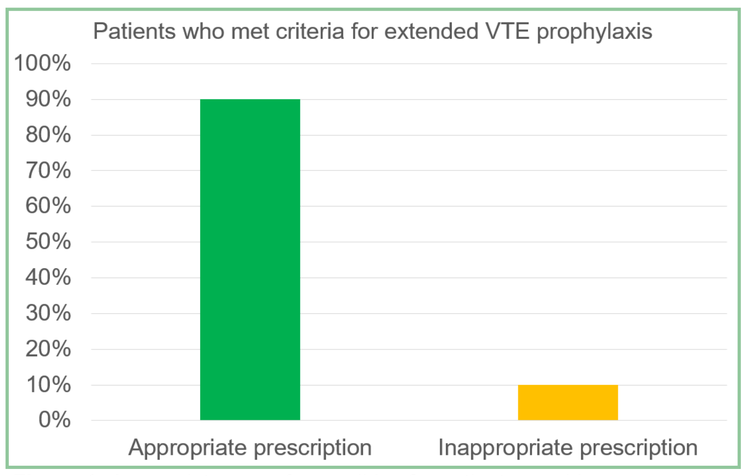

Figure 1: *Appropriateness of prescribing for patients requiring extended VTE prophylaxis*

Pharmacist intervention to ensure compliance
Pharmacist intervention was required for 57.8% (26/45) of prescriptions that were correct at the point of discharge. LMWH omitted on discharge comprised 73.1% (19/26) of interventions.

Prescribing non-compliance
VTE prophylaxis was non-compliant with local guidelines for 5 patients:

- 2 patients (40%) were not prescribed LMWH on discharge
- 3 patients (60%) were prescribed 6 weeks duration instead of 2 weeks

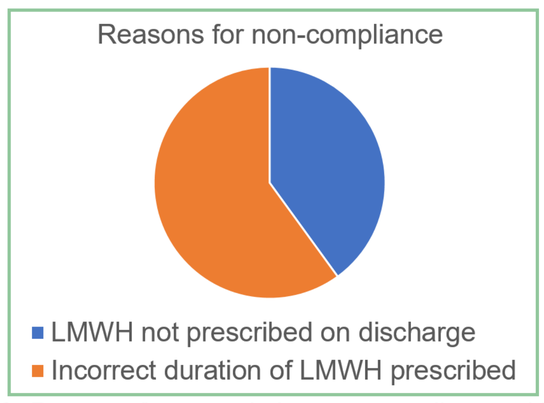

Figure 2: *Reasons for prescription non-compliance with local guidelines*

Three of the patients receiving non-compliant VTE prophylaxis were discharged on the weekend or from birth suite without clinical pharmacist review.

Reasons for non-compliance for the other 2 patients were:

- Consultant decision for patient to receive 6 weeks rather than 2 weeks duration
- LMWH not prescribed on discharge (most of the course was completed during prolonged inpatient admission)

Discussion

Overall appropriate prescribing of extended VTE prophylaxis was achieved, however a high rate of pharmacist intervention was required to ensure compliance with recommendations. Patients not receiving appropriate VTE prophylaxis were more likely to be discharged on the weekend or from birth suite, without clinical pharmacist review.

Some of the limitations identified in this audit include:

- Data was only collected for a 1 month period. This might not be a full representation of the general prescribing pattern.
- Local guidelines screen VTE risk based on booking BMI whereas other guidelines include BMI as a risk factor.[2]

Conclusion

This study highlights the importance of pharmacists in ensuring appropriate prescribing of extended VTE prophylaxis, and the requirement to raise awareness of the local guideline amongst the medical team.

Further studies can focus on comparing local guidelines against management at other tertiary centres or against recommendations from medical colleges, with this information used to ensure a standardised approach is adopted to prevent VTE in postpartum women.

These results support the development of a business case for a 7-day clinical pharmacy service to the postnatal wards and birth suite to ensure safe medication use in obstetric patients.

References

1. Maughan, B. C., Marin, M., Han, J., Gibbins, K. J., Brixey, A. G., Caughey, A. B., Kline, J. A., & Jarman, A. F. (2022). Venous Thromboembolism During Pregnancy and the Postpartum Period: Risk Factors, Diagnostic Testing, and Treatment. *Obstetrical & Gynecological Survey*;*77*(7): 433–444.
2. Royal College of Obstetricians and Gynaecologists: Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium (2015). pp1-40.
3. Enoxaparin (2023). The Royal Women's Hospital Pregnancy and Breastfeeding Medicines Guide.
4. Western Health Procedure: Care of Women with Obesity in Pregnancy. Version date: February 2022.