Antenatal and Postnatal Thromboprophylaxis in Maternity Patients at St Luke's Hospital

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Background

Venous thromboembolism (VTE) remains a leading cause of maternal mortality and morbidity (1) all women should undergo a documented assessment of risk factors for VTE in early pregnancy or pre pregnancy. Risk assessment should be repeated if the woman is admitted to hospital for any reason or develops either undercurrent problems. Risk assessment should be repeated again intrapartum or immediately postpartum.(2)

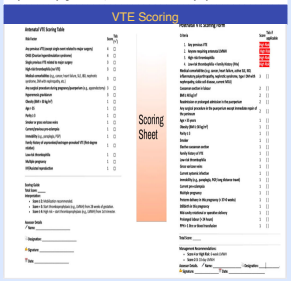
Low molecular weight heparins (LMWH) are the anticoagulant of choice for thromboprophylaxis in pregnancy and there is now a considerable experience of their use in pregnancy. LMWH appears to have an excellent safety profile in pregnancy (1) The RCOG Green-top Guideline (No. 37a, 2009) has popularised a complex stratified risk assessment scoring scheme. It is widely referenced. The approach is based on the premise that multiple risk factors increase the risk of VTE.(1) When prescribing LMWH at a prophylactic dose, once a day dosing is reasonable A weight-adjusted regimen should be used(1) this regime is printed in our drug Kardex and being followed

Thromboprophylaxis is commonly prescribed after an elective after an elective caesarean section ere **(1)** indeed to revise postnatal risk scoring for VTE as additional risk factors include c'section postpartum infections and difficult instrumental delivery leading to immobilization .there is separate scoring system available for postnatal vte risk assessment. However in our hospital we observed less compliance with vte risk assessment.

What is VTE and What is the Risk for VTE?

VTE is the acronym for Veinous Thromboembomboembolism,is a term referring to blood clots in the veins. VTE includes deep vein thrombosis (DVT) and pulmonary embolism (PE). DVT occurs when a blood clot develops in a deep vein, most commonly in the lower leg, thigh, or pelvis, but can also occur in the arm.During pregnancy, the risk of VTE is about 5-fold compared to non-pregnant women, and becomes 30 to 60-fold at postpartum

VTE Scoring



Antenatal VTE Scoring Table

Risk factor	Score	Tick if applicable
Any previous VTE (except single event related to major surgery)	4	☐
BMI (Kilo/m²) (pre-pregnancy or booking)	4	☐
Single previous VTE related to major surgery	3	☐
High risk thrombophilia (see VTE)	3	☐
Medical comorbidities (e.g., cancer, heart failure, SLE, IBD, nephrotic syndrome, sickle cell disease, etc.)	3	☐
ART/IVF treatment in this pregnancy (spontaneous e.g., ovarian hyperstimulation syndrome)	3	☐
Hyperemesis gravidarum	1	☐
Obesity (BMI > 30 kg/m²)	1	☐
Age > 35	1	☐
Parity ≥ 3	1	☐
Smoker at given delivery date	1	☐
Current/previous varicose veins	1	☐
Immobility (e.g., paraplegia, VGO)	1	☐
Family history of unexplained miscarriage or recurrent IVF (3rd degree relative)	1	☐
Low risk thrombophilia	1	☐
Multiple pregnancy	1	☐
Infection/sepsis/pyelonephritis	1	☐

Scoring Sheet

Scoring Table

Total Score _____

Intervention:

- Score ≥ 3 (VERY HIGH) recommended:
- Score ≥ 2 (at thromboprophylaxis) e.g., LMWH from 28 weeks of gestation
- Score ≥ 1 (high risk – start thromboprophylaxis) e.g., LMWH from 36 weeks

Assessor Details

1st Name _____

2nd Name _____

Designation _____

1st Signature _____

2nd Signature _____

1st Date _____

Postnatal VTE Scoring Table

Criteria	Score	Tick if applicable
i. Any previous VTE		
ii. Anyone requiring antenatal LMWH		
iii. High risk thrombophilia		
iv. Low risk thrombophilia +family history (FH+)		
Medical comorbidities (e.g., cancer, heart failure, sickle cell, IBD, inflammatory polyarthropathy, nephrotic syndrome, Type I DM with nephropathy, SLE, Antiphospholipid syndrome, current NMIC)	3	☐
Gestational age (elective or induced)	2	☐
BMI ≥ 40 kg/m²	2	☐
Hyperemesis or prolonged admission in the postpartum	2	☐
Any surgical procedure in the puerperium except immediate repair of 3rd degree tear	2	☐
Age > 35 years	1	☐
Obesity (BMI ≥ 30 kg/m²)	1	☐
Parity ≥ 3	1	☐
Smoker	1	☐
Diarrhea and vomiting	1	☐
Varicose veins	1	☐
Family history of VTE	1	☐
Low risk thrombophilia	1	☐
Severe infection/sepsis	1	☐
Current smoker	1	☐
Current pre-eclampsia	1	☐
Multiple pregnancy	1	☐
Preterm delivery < 34 weeks gestation	1	☐
IUGR/SGA in this pregnancy	1	☐
Obstetric intervention or operative delivery	1	☐
Prolonged labour (> 24 hours)	1	☐
PPH ≥ 1 litre or Blood transfusion	1	☐

Total Score _____

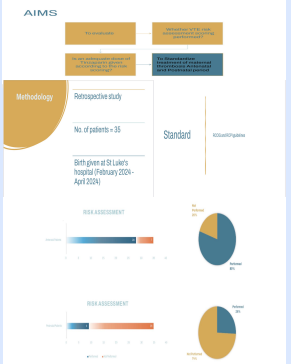
Management Recommendation:

- Score ≥ 4 (high risk) = medical advice
- Score ≥ 2 (1-3) = 2 days LMWH

Assessor Details: 1st Name _____ Designation _____

1st Signature _____ 1st Date _____

VTE Incidence at SLK



Results and Conclusions

Results

Tinzaparin dosing

- Antenatal -> Correct Tinzaparin dosage given (According to Standard guidelines)
- Postnatal -> Inadequate Tinzaparin dosage given (Not according to Standard guidelines)

Conclusions

- The antenatal VTE risk assessment scoring was done and adequately treated according to standard guidelines.
- Postnatal VTE risk assessment scoring was not done and not treated properly. It didn't meet the standard criteria.
- In our hospital we found an additional postnatal VTE scoring sheet which had different Tinzaparin dosage + scoring in comparison to the standard guideline

Reference: - G. Kidson- Gerber The Obstetric Hematology Manual2011 September 5 (2011) 129- p ; 9.Brenner B. Haemostatic changes in pregnancy. Thromb Res 2004;114:409- 14. 10.1016/j.thromres.2004.08.004 ; Heit JA, Kobbervig CE, James AH, Petterson TM, Bailey KR, Melton LJ, 3rd. Trends in the incidence of venous thromboembolism during pregnancy or postpartum: a 30- year population- based study. Ann Intern Med. 2005;143:697- 706 ; Bates SM, Middeldorp S, Rodger M. Guidance for the treatment and prevention of obstetric associated venous thromboembolism. J Thromb Thrombolysis 2016;41192- 128. 10.1007/s11239- 015- 1309- 0 ; S.L. Cohen, C. Feizullayeva, J.A. McCandlish, P.C. Sanelli, T. McGinn, B. Brenner, et al. Comparison of international societal guidelines for the diagnosis of suspected pulmonary embolism during pregnancy Lancet Haematol., 7 (3) (2020), pp. e247- e258; Royal College of Obstetricians and Gynaecologists. Reducing the risk of