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Successful management of deep vein thrombosis in pregnancy in a low resource setting: Challenges and constraints

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Abstract
Venous thromboembolism in pregnancy contributes significantly to maternal morbidity and mortality. While it has received much attention in the developed countries, the level of awareness in the developing countries is still low, and most reported cases are on non-pregnant surgical patients. Its management also poses some challenges especially in resource constraint settings. We present a case of 27-year-old primigravida who developed left lower limb deep vein thrombosis at gestational age of 29 weeks. Investigations at presentation showed haematological and Sonographic features of deep vein thrombosis. She was successfully managed to term with low molecular weight heparin despite limited resources. Successful management of thrombotic events in pregnancy is achievable in low resource setting but comes with challenges of limited choice of appropriate anticoagulant and financial constraints.

Keywords: Deep vein thrombosis, pregnancy, anticoagulants, constrains.

Introduction
The prothrombotic state of pregnancy is attributable to the increased activities of procoagulants relative to the anticoagulants [1]. The risk of deep vein thrombosis is about five times more likely in pregnancy than in non- pregnant women [1, 2]. There is increased fibrin generation, increased levels of coagulation factors II, VII, VIII, and X while fibrinolytic activity is decreased [1, 2, 3]. Pregnancy also causes progressive fall in protein S levels and acquired resistance to activated Protein C [2, 4]. The case being presented highlights the challenges in management of deep vein thrombosis in pregnancy especially in low resource environment.

Case Report
A 27 year old petty trader primigravida who was referred to our facility on account of Doppler ultrasound confirmed proximal left lower limb deep vein thrombosis at gestational age of 29 weeks. The essential finding at presentation was that of a swollen left lower limb 7cm bigger than the right lower limb at 15cm above the patella and 12cm bigger at 20cm below the patella. There was associated calf tenderness and differential warmth. There was no history of trauma or family history of deep vein thrombosis. Patient was not a known diabetic or hypertensive. Doppler ultrasound at presentation showed markedly distended and completely filled common superficial, popliteal and small saphenous veins with echogenic thrombus without any detectable blood flow within them. The arterial systems were however preserved. The D- Dimmer assay was markedly elevated; 1209.48ng/ml (reference value 500ng/ml). Coagulation profile was in keeping with hypercoagulable state: Prothrombin test: 13seconds, control: 15secods INR 0.8, APPT: Test 32 seconds, Control 36seconds. Patient was commenced on subcutaneous Clexane 80mg a.m and 40mg p.m (1mg /kg per day) and was monitored with coagulation profile twice weekly and Doppler Ultrasound weekly. Doppler ultrasound done on the 3rd week of anticoagulation showed significant improvement. There was good flow in the mid and distal saphenous vein but the common femoral vein, proximal saphenous vein, popliteal, tibia veins and external iliac veins did not show any flow within them. Doppler ultrasound done in the 5th week of anticoagulation showed inadequate filling with minimal flow in the common femoral to the tibia veins though without any echogenic clot seen. At this point patient could no longer afford the required dose of Clexane due to financial constraint, as the payment was totally out of pocket.

The dosage was reviewed to 40mg 12hrly and with financial supports from the managing team and other well-wishers, she was maintained on this dosage till term. At 38weeks patient had induction of labour, with the anticoagulation discontinued 12hours earlier to prevent obstetric haemorrhage. The labour lasted for 6hours and was delivered of a life male infant, with birth weight of 3.0kg and good Apgars scores. The coagulation profile at the time of delivery was Prothrombin time: 17.6 seconds (Reference 11-16s). INR 1.2 (Reference 0.8-1.2) and Activated partial thromboplastin time was 54.3seconds (Reference 30-40s). The anticoagulant was recommenced 24 hours after delivery at 40mg 12hrly. Doppler ultrasound done one week post-partum was essentially normal and patient anticoagulation was changed to oral warfarin at a dose of 2.5mg at night, while being monitored with INR which remained essentially normal throughout puerperium.

Discussion

Management of deep vein thrombosis (DVT) in pregnancy and the choice of anticoagulant involve taking into consideration the safety of the unborn child and the mother. Warfarin, a vitamin K antagonist which is cheaper and convenient being an oral drug crosses the placenta and is associated with teratogenicity. It carries about 30% risk of congenital abnormality in the first trimester with attendant miscarriage when taken during the first 4-8weeks of conception referred to as organogenesis [5]. Low molecular weight heparin is the anticoagulant of choice in the treatment of DVT in pregnancy even though very expensive, inconvenient and associated with osteoporosis and heparin induced thrombocytopenia but it doesn't cross the placenta [6, 7]. The safety of selective factor Xa inhibitor like Fondaparinux during pregnancy has not been established. However few case series and reports done during 2nd and 3rd trimester showed no adverse effect [8, 10]. The challenges encountered during the management of this patient in a resource limited setting ranges from unavailability of necessary intervention like thrombolectomy which when done reduces the risk of post thrombotic syndrome and venous reflux.[3] Even though the traditional method of treating Deep vein thrombosis has always been systemic anticoagulation, thrombectomy has been found to be more effective when delivered within three days of onset of symptoms [5].

The fact that management of DVT in pregnancy has to take into consideration the wellbeing of the mother and the unborn child, the choice of anticoagulants is usually restricted to the very expensive low molecular weight heparin that does not cross the placenta nor associated with teratogenicity. This group of anticoagulants usually put serious financial burden on the patients especially in a setting where patients pay out of pocket. Our patient could not afford Clexane to cover for the period of 8 weeks and but for the intervention of the managing team who came to her aid financially, the medication would have been stopped abruptly with possible untoward consequences.

Conclusion

Successful management of thrombotic events in pregnancy is achievable in low resource setting but comes with challenges of limited choice of appropriate anticoagulant and financial constraints

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