A proposed guide: Anti-Xa guided Low molecular weight heparin (LMWH dosing for pregnant mothers with mechanical heart valves as a safer option compared to the conventional weight based LMWH dosing

Nurazlina binti Azizi, Intan Sabrina binti Mohamed Haniff, Muniswaran A/L Ganesham @ Ganeshan

Maternal and Fetal Medicine Unit, Department of Obstetrics and Gynaecology, Hospital Tunku Azizah, Kuala Lumpur

ABSTRACT

Introduction: Achieving safe and effective anticoagulation among pregnant mothers with mechanical heart valves (MHV) remains challenging. Intravenous unfractionated heparin requires inpatient APTT monitoring while warfarin, especially doses beyond 5 mg is associated with a significant risk of fetal loss. Low molecular weight heparin (LMWH) has been proposed as an alternative anticoagulation although initial studies showed a significant risk of valve thrombosis among patients given weight based LMWH. Methods: We propose a precise strategy of Anti-Xa guided dosing of LMWH as a safer option in pregnancy, on par with some recent studies. This study retrospectively reviewed the trough and peak Anti-Xa levels of pregnant patients with MHV who were treated with weight-based dosing of LMWH in Hospital Tunku Azizah between September 2021 till April 2023 and analysed the doses required to achieve the desired Anti-Xa levels. Results: Eight patients were included in the study and we found that 1 mg/kg/BD dosing of LMWH was suboptimal among all of our patients (100%, n=8). The mean trough was 0.35 U/mL while the mean peak was 0.62 U/mL, far below the efficacy range. Our study showed that most patients required a mean LMWH dosing of 1.56 mg/kg/BD compared to conventional 1 mg/kg/BD dosing. Apart from being efficacious, it was also not associated with valve thrombosis, fetal loss, antepartum or postpartum haemorrhage. Conclusion: We propose a guide to suggest that treatment dosing of LMWH for pregnant mothers with MHV should be guided by peak and trough Anti-Xa levels as a precise and safer strategy.