

Evaluation of Enoxaparin Dosing Strategies and Anti-Xa Levels in Obesity

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Introduction

Enoxaparin dosing in obesity is challenging with dosing strategies such as dose capping or dosing on total body weight (TBW) resulting in suboptimal anticoagulation. Additionally, there is uncertainty around whether TBW or body mass index (BMI) is a more appropriate measure for enoxaparin dosing in obesity. Previous research at Princess Alexandra Hospital (PAH) has advocated doses around 0.75-0.85mg/kg TBW twice daily, but also taking into consideration BMI.^{1,2} Anecdotal concerns have since been raised that these recommendations may be too high for patients weighing 110-120kg.

Aims

To determine if BMI consideration, and an enoxaparin dosing strategy of 0.75-0.85mg/kg TBW twice daily, achieves therapeutic anti-Xa levels in obese patients weighing 110-120kg.

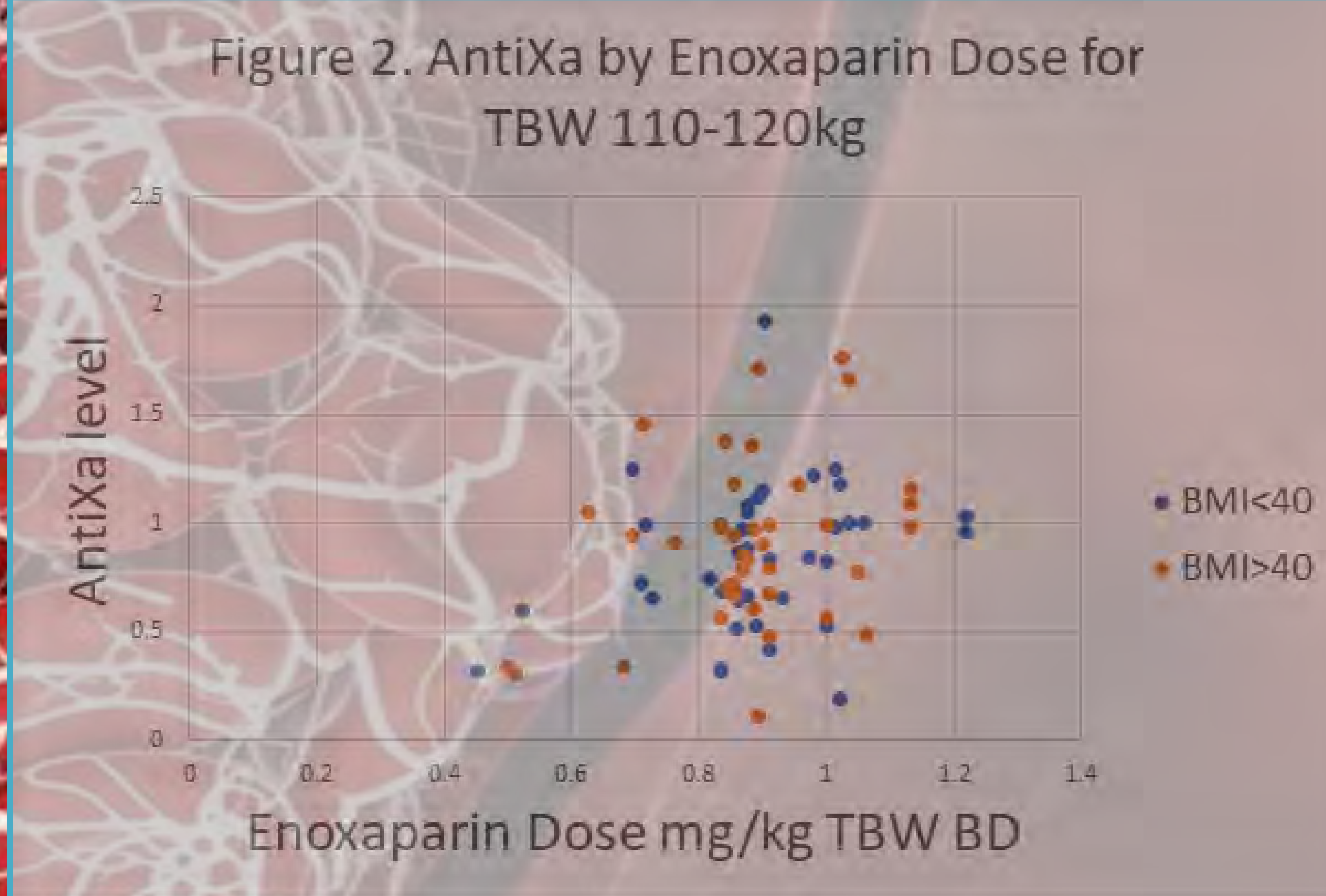
Methods

A retrospective observational study was conducted at PAH using data extracted via convenience sampling from electronic records between April 2017-August 2021. Patients included were inpatients at the time of anti-Xa assay, had TBW of 110-120kg, were prescribed a treatment dose (BD) of enoxaparin, and had appropriate anti-Xa sampling. This data was amalgamated with historical data from 2010-2017 that met the same inclusion criteria.

Weight (kg)*	BMI (kg/m ²)	
	30-40	>40
110-120	110mg BD	100mg BD
120-135	120mg BD	110mg BD
135-150	130mg BD	120mg BD
150-165	140mg BD	130mg BD
165-180	150mg BD	140mg BD
>180	If urgent to dose and cannot use UFH give 150mg and seek specialist advice	

*Actual body weight

Figure 1: MSH Prescribe Enoxaparin Dosing Guidelines



Results

82 patients met inclusion criteria & were included.

- **All BMIs:** 0.76-0.85mg/kg TBW twice daily dosing yielded the most therapeutic anti-Xa levels.
- **BMIs 30-39.9kg/m²:** 0.86-0.95mg/kg TBW twice daily dosing yielded the most therapeutic anti-Xa levels.
- **BMIs ≥40kg/m²:** 0.76-0.85mg/kg TBW twice daily dosing yielded the most therapeutic anti-Xa levels.

Conclusion

Our results support the approach of 0.85mg/kg TBW twice daily enoxaparin dosing in obese patients between 110-120kg with dosing slightly above this for patients with BMIs of 30-39.9 kg/m² and dosing slightly below this for patients with BMIs ≥40 kg/m². However, interindividual variability was wide in this cohort and thus testing anti-Xa levels is warranted.

References

1. Van Oosterom N, Winckel K, Barras M. Evaluation of weight based enoxaparin dosing on anti-Xa concentrations in patients with obesity. J Thromb Thrombolysis. 2019 Oct;48(3):387-393. doi: 10.1007/s11239-019-01847-4. PMID: 30945098
2. MSH Prescribe mshprescribe.com

