Enoxaparin (Lovenox®) in Low Body Weight Patients for VTE Prophylaxis

Background:

Low body weight patients who receive Enoxaparin for VTE prophylaxis can experience increased exposure, which can increase their risk of bleeding. Currently there are limited trials evaluating Enoxaparin for VTE prophylaxis in low body weight patients. A small number of studies have given us some data to provide a good direction for appropriate dosing in this patient population. However, we must extrapolate from the data as the methodology and patient characteristics in these trials differ slightly. Per the package insert, low-weight women and men who receive non-weight based enoxaparin experience increased anti-Factor Xa exposure when compared to normal weight individuals[1]. The manufacturer recommends monitoring patients with low body weight frequently for signs and symptoms of bleeding. They do not recommend a dose reduction. This recommendation was derived from a single-dose pharmacokinetic study in which females < 45 kg experienced a 52% higher anti-Factor Xa exposure and males < 57 kg experienced a 27% higher anti-Factor Xa exposure after a single dose of Enoxaparin 40 mg[1]. However, it is not clear if the increased anti-Factor Xa exposure causes an increased risk of bleeding in this patient population.

Study Summaries:

- Rojas, et al:
  - ➢ Assessed anti-Xa levels in pts </= 55 kg
  - ➢ Anti-Xa levels were > 0.05 IU/mL in 60.7% of patients; and in pts </= 45 kg it was 85%

- Dybdahl, et al:
  - ➢ Assessed major/minor bleeding rates & VTE in pts < 45 kg
  - ➢ Risk of bleeding similar among doses (30 mg once daily, 30 mg twice daily, 40 mg once daily) but increased with age in low body weight patients
  - ➢ No VTE occurrence
  - ➢ Conclusion – reasonable to consider decreasing prophylactic enoxaparin dose in low-body weight patients, especially in patients > 55 years old

Recommendations:

Clinical judgement of the patient specific scenario should always drive decision making. The table below provides guidance for making recommendations.

Enoxaparin for VTE Prophylaxis in Low Body Weight Patients	
Age > 65 years and weight < 45 kg	Most data to support reducing dose to enoxaparin 30 mg daily
Age > 75 years and weight 45 – 55 kg	Strong data to reduce dose to enoxaparin 30 mg daily
Weight > 55 kg	No dose adjustment necessary

* These recommendations are for both female and male individuals
* If on a twice daily regimen, risk vs. benefit should determine appropriate dose

References:

1. Sanofi-Aventis U.S. LLC. *Lovenox (Enoxaparin Sodium Injection) Package Insert*. Bridgewater, NJ: Sanofi-Aventis U.S. LLC; 2018.
2. Rojas L, Aizman A, Ernst D, et al. Anti-Xa activity after enoxaparin prophylaxis in hospitalized patients weighing less than fifty-five kilograms. *Thromb Res*. 2013;132:761-764.
3. Dybdahl D, Walliser G, Pershing M, et al. Enoxaparin Dosing for Venous Thromboembolism Prophylaxis in Low Body Weight Patients. *Clin Med Insights Blood Disord*. 2019;12:1-7.