Which enoxaparin preventive dose for obese patients in orthopedic surgery?

MARIE-LABAN L, JOUGLEN J, QUENARDEL A
CHU Purpan – TOULOUSE – France

What was done?
An analysis of enoxaparin prescriptions at a preventive dose for thromboprophylaxis for obese patients was conducted in our orthopedic surgery center.

Why was it done?

How was it done?
By an observational monocentric retrospective study: we collected the preventive prescriptions of enoxaparin during the hospitalization duration from 01/01/2020 to 02/28/2020. We compared enoxaparin's dose with different criteria: sex, age, weight, body mass index (BMI), glomerular filtration flow, surgical and medical history, long term treatment, surgical indication and prescribers.

What was achieved?
We included 517 patients.

Only the criteria BMI and weights independently influence enoxaparin’s doses. Other criteria have no influence. In our study, no patient had a glomerular renal function inferior at 15 mL/min. No thrombosis or significant bleeding occurred.

BMI
The dosage increases from BMI ≥ 25 kg/m².
In our study, 103 (20%) patients are obese (BMI ≥ 30), and 11 (2%) have a BMI ≥ 40 kg/m².
Among patients with BMI < 40kg/m² (n=506), 29 (6%) had an enoxaparin dosage higher than 4000 IU/d (can be underuse). (A)
Among patients with BMI ≥ 40 kg/m², 4 (34%) had a dosage of 4000 IU/d (can be underestimate). (B)
- For BMI < 30 kg/m², prescriptions are homogeneous with only few doses decreased (renal failure or low thrombotic risk).
- For BMI between 30 and 40 kg/m², there is a disparity in dosages between prescribers and by prescribers.
- For BMI ≥ 40 kg/m², each prescriber seems to have his own « protocole ».

WEIGHT
Most of the time, enoxaparin’s doses increase with high weights (≥ 90 kg). One prescriber systematically increases the enoxaparin’s dose for weights higher than 80kg independently of the BMI value. Increasing the dose is a trend for high weight but with no clear consensus.

What is next?
This study highlights the heterogeneity of preventive dose of enoxaparin for obese patients in our orthopedic surgery context. Based on US recommendations, we should propose to anesthesiologists enoxaparin doses adaptation for patients with weight ≥ 100 kg and/or BMI ≥ 40 kg/m².
According to our study and literature, it doesn’t seem obvious to adapt enoxaparin dose for weight < 100kg and/or BMI < 40 kg/m². Work in tandem with anesthesiologists is underway to harmonize practices, in our center.

Sources:
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3. Roullot S. "Thromboprophylaxie périopératoire : nouvelles recommandations" ; Journées d’Anesthésie Réanimation Chirurgicales d’Aquitaine; 2018