

Low molecular weight heparins (LMWH)

Heparinoids

Fondaparinux (Arixtra®)

Danaparoid (Orgaran®)



Description:

LMWH catalyze the binding of antithrombin to clotting factor Xa, which is thereby inhibited. The effect on thrombin or F IXa or F XIa is significantly smaller and not clinically relevant.

LMWH are administered subcutaneously and have a highly predictable effect, so monitoring is usually not necessary (except in cases of renal insufficiency, severe overweight or underweight and during pregnancy).

LMWH are offered by different manufacturers and as generics; the differences are marginal and mainly concern the approved indications.

The risk of HIT is 10x lower than UFH, but possible.

LMWH can be partially antagonized with protamine, but a rebound from the subcutaneous depot is possible.

Dosing and therapeutic options:

Prophylactic anticoagulation:

LMWH: 4000 E sc. 1x daily

Fondaparinux: 2.5 mg sc. once daily.

Danaparoid: 2x750 E sc./d

Therapeutic anticoagulation:

LMWH: 2x100 U/kg or 1x200 U/kg sc.

Fondaparinux: 1x7.5 mg sc.

Danaparoid: 3x750 – 3x1500 E sc.

Surveillance:

No routine monitoring is recommended. Only in cases of renal insufficiency, severe overweight or underweight and during pregnancy, the anti-Xa activity assay with a corresponding calibration curve can be used:

Trough levels during therapeutic anticoagulation: 0.3-0.6 U/mL

Trough level at prophylactic dosage: <0.2 U/mL.

An anti-Xa test 4 hours after application should only be carried out in patients with a relevant risk of bleeding (e.g. postoperative, severe thrombocytopenia, ulcerating tumors, risk of gastrointestinal bleeding).

For questions please contact a coagulation specialist.

References:

Thomas L, Laboratory and Diagnosis, 2023, Release 5: <https://www.labor-und-diagnose.de/index.html>

Parameter catalog of the Clinical Institute for Laboratory Medicine, Med.Univ.Wien and AKH Vienna:

<https://www.akhwien.at/default.aspx?pid=3982>

List of services for clinical chemistry, Univ.Klinikum Ulm: <https://www.uniklinik-ulm.de/zentrale-einrichtung-klinische-chemie/leistungskatalog.html>