
Lab Dept: Coagulation

Test Name: HEPARIN ASSAY, LOW MOLECULAR WEIGHT

General Information

Lab Order Codes: HLMW (Low Molecular Weight)

Synonyms: Anti-Xa Assay

CPT Codes: 85520 – Heparin assay

Test Includes: Heparin Low Molecular Weight level measured in IU/mL.

Logistics

Test Indications: Measurement of low molecular weight heparin levels specifically Lovenox® in patients treated for thrombotic disease.

Lab Testing Sections: Coagulation

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 2 hours

Special Instructions: **Do Not** draw through a heparinized line. Notify section supervisor if other anti-thrombin agents are used.

Specimen

Specimen Type: Whole blood

Container: Light Blue top tube (Buffered Na Citrate 3.2%)

Draw Volume: 1.8 mL for any of these 3: PT, PTT, Fibrinogen, D Dimer or Heparin

2.7 mL for 4 or more tests or when a TT or Factor is ordered.

Processed Volume: 0.9 mL (Minimum: 0.5 mL) plasma

Collection:

- A clean venipuncture is essential, avoid foaming.
- Entire sample must be collected with a single collection, pooling of sample is unacceptable.
- Capillary collection is unacceptable.
- Patient's with a hematocrit level >55% must have a special tube made to adjust for the hematocrit; contact laboratory for special tube.
- Mix thoroughly by gentle inversion. Deliver immediately to the laboratory at room temperature via courier or pneumatic tube.

Off campus collection:

- Must be tested within 30 minutes of collection.
- Do not refrigerate.
- If not received in our lab within 30 minutes of collection, sample must be centrifuged and *platelet-poor plasma removed from cells and transferred to an aliquot tube. Plasma must be received in lab within 4 hours of collection or frozen at 20°C and delivered to lab on dry ice within 2 weeks.

***Validation of your lab's centrifuge for platelet poor plasma is required.**

Special Processing:

Lab Staff: Samples should be centrifuged within 30 minutes of collection. Remove plasma, store in a plastic screw top vial. Send frozen if testing will not be completed within 4 hours.

Patient Preparation:

None

Sample Rejection:

Improper tube; clotted specimens; underfilled tubes; hemolyzed specimens; mislabeled or unlabeled specimens

Interpretive**Reference Range:**

Normal: <0.01 IU/mL (patient not on heparin)

Therapeutic Range: 0.5 to 1.0 IU/mL

Prophylactic Range: 0.2 to 0.4 IU/mL (LMW – Low Molecular Weight)

HLMW Level	Hold Next Dose	Dose Change	Repeat HLMW Levels
>0.35	NO	25%	4 hours after dose given
0.35 - 0.49	NO	10%	4 hours after dose given
0.5 - 1	NO	No change	1x after this range is reached, then 1x per week at 4 hours after dose given
1.01 - 1.5	NO	20%	4 hours after next dose

1.51 - 2	3 hours	30%	4 hours after next dose
>2	For these patients, all further doses should be held and heparin levels measured every 12 hours until it is less than 0.5 IU/mL. Restart at 60% of last dose.		

Critical Values:

N/A

Limitations:

The test cannot distinguish between unfractionated and low molecular weight heparin. The correct assay must be requested for the type of heparin the patient is receiving or the results will be off by a factor of 2 to 3.

The plasma cannot be treated for heparin removal.

Methodology:

Chromogenic Anti-Xa

References:

Massicoti P, et al (1996) Low Molecular Weight Heparin in Pediatric Patients with Thrombotic Disease: A Dose Finding Study, J Pediat 128:313

Enoxaparin Guidelines, Children's Thrombophilia Network (4/22/1996)

Updates:

9/15/2014: Added Off Campus collection info.