Beaumont

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Coagulation Tests: Specimen Collection and Handling (Non Platelet Function Test Only)-RO

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

This procedure gives steps on how to collect and handle special coagulation tests except platelet function analysis. For platelet function testing, refer to the specific platelet function procedure.

II. ACRONYMS:

A. Clinical Laboratory Improvement Amendment (CLIA)
B. Prothrombin Time (PT)
C. Platelet Poor Plasma (PPP)
D. Activated Partial Thromboplastin Time (aPPT)
E. Von Willebrand Factor (VWF)

III. PROCEDURE:

A. Type:
    1. Whole blood collected in a 5 mL, light blue top, 2.7mL draw plastic Hemogard Vacutainer tube.
    2. Anticoagulant: 3.2% Sodium Citrate.
B. Amount:
    1. 1. 9:1 ratio (2.7 mL whole blood + 0.3 mL citrate) must be maintained. Tube **must** be full to fill line on tube.
C. Blood Collection-Special situation:
    1. When intravenous fluid (saline or dextrose) is being administered in a patient the registered nurse (RN) can turn off the IV for 3 minutes and the venipuncture can be performed. Discard the first 5 mL of blood. Make sure RN is available to restart the IV after the venipuncture.
D. Special Handling:
    1. Specimens are kept at room temperature (20-25°C) for transport to the laboratory.

2. Specimens must be centrifuged at room temperature (20-25°C) at approximately 2500g (3500 RPM) for 15 minutes to obtain PPP before performing tests. Alternatively, specimens may be centrifuged in the Stat Spin centrifuge for 3 minutes (7200 RPM) to obtain PPP and must have a platelet count of <10 bill/L.
3. Specimens to be frozen for later analysis **must** be PPP. Double centrifugation of the sample may be performed to ensure PPP. This can be accomplished by transferring the plasma following the initial centrifugation to a plastic (polypropylene) tube using a plastic pipette and centrifuging a second time. The platelet poor plasma must be frozen in appropriately labeled plastic (polypropylene) tubes, in 0.5 mL aliquots (if possible) at -70°C and tested within 6 months.
4. Frozen plasma specimens must be quick thawed at 37°C **for no more than 10 minutes**, gently mixed and tested immediately. Thawing at room temperature is unacceptable. Mixing of these previously frozen samples is critical, as freezing precipitates certain proteins. Lipemic specimens which do not read on automated analyzers **must** be performed on back up mechanical instrument. Ultra centrifugation is **unacceptable**.

E. Timing:
1. The storage time for the PT assay is 24 hrs at room temperature from time of collection.
2. The storage time for the D-dimer assay is 8 hours at room temperature or frozen at -70°C for 30 days.
3. Heparin APTT and Anti-Xa Unfractionated Heparin samples should be centrifuged within one hour of collection due to heparin neutralization by Platelet Factor 4. The assays must be performed within 4 hours of collection and kept at room temperature. If assays cannot be performed within these time limits, then plasma must be aliquoted and frozen as described in Specimen Handling above.
4. The storage time for all other assays is 4 hours at room temperature from time of collection. Specimens must be maintained uncentrifuged or centrifuged with the plasma remaining on top of the cellular component, in an unopened tube, at room temperature. (Storage at 2-4°C is not recommended due to cold activation of Factor VII). If assays cannot be performed within these time limits, then plasma must be aliquoted and frozen as described in Specimen Handling above.

F. Exception:
1. BRL APTT specimens – storage time is 16 hrs from time of collection based on an in house study.

G. Criteria for Unacceptable Specimens:
1. The following must be canceled and redrawn. Tests may NOT be added to them. Specimens which:
   a. Do not meet the timing criteria above
   b. Are clotted
   c. Are collected in the wrong type tube (wrong anticoagulant or tube with an activating surface).
   d. Are under filled (refer to BD Vacutainer® Plus Plastic Citrate Tube Draw Volume Guide).
   e. Are grossly hemolyzed
   f. Are contaminated with heparin or any other fluid.
   g. Are frozen samples that have thawed at room temperature.
   h. Are refrigerated samples for VWF antigen, VWF Activity, or Factor VIII analysis

IV. REFERENCES:

A. H21-A5 Clinical and Laboratory Standards Institute (CLIA)

B. Collection, Transport, and Processing of Blood Specimens for Testing Plasma-Based Coagulation Assays and Molecular Hemostasis Assays; Approved Guideline---Fifth Edition 2007

C. APTT Time Study Management Project - William Beaumont Hospital Coagulation Laboratory; September 12, 2006.

D. Effect of Hemolysis on Coagulation Studies – William Beaumont Coagulation, November, 2014

Attachments

No Attachments

Approval Signatures

Step Description	Approver	Date
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Applicability

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