

October 29, 2019

HEMATOLOGY

CHANGE in TESTING for PROTEIN C ANTIGEN

Date effective: November 1, 2019**Background Information:**

Protein C is a naturally occurring anticoagulant. Protein C is a Vitamin K-dependent protein. Protein C deficiency can be acquired or inherited condition and is associated with an increased risk of venous thrombosis. Protein C can be low in the setting of Vitamin K deficiency or warfarin administration. If the patient is being treated with warfarin, lab should be notified. Historically, the Haematology laboratory has measured and reported both protein C antigen level and activity level. Protein C antigen has been measured by immune-electrophoresis but reagents for this method have been discontinued. Assay of protein C activity is recommended for initial laboratory evaluation of patients suspected of having congenital protein C deficiency (personal or family history of thrombotic events). A normal protein C activity level essentially rules out the presence of protein C deficiency.

Change in Test Procedure:

As of November 1, 2019, the Haematology laboratory will routinely measure and report protein C activity, only. If protein C activity is within the reference range (81-157%), protein C antigen testing will not be performed. If the activity level is below the reference range and warfarin administration is unknown, testing of other Vitamin K dependent clotting factor levels will be performed. If there is no evidence for Vitamin K deficiency, a sample will be sent to Hamilton Regional Laboratories for measurement of protein C antigen by ELISA methodology.

- **Sample requirement:** No change. A single 1.8 mL blue-top citrate tube or as part of sample collection for hypercoagulability profile assays [Haemostasis requisition].
- **Test name:** Protein C Immunological (PCI)
- **Expected turn-around time:** 3 weeks
- **Reference Range:** 0.65 – 1.25 U/L (65-125%)

References/Resources:

1. Hepner M., Karlaftis V. (2013) Protein C. In: Monagle P. (eds) Haemostasis. Methods in Molecular Biology (Methods and Protocols), Humana Press, Totowa, NJ: vol 992, p.365-372

Patient Impact:

1. Samples found to have low protein C activity level (and normal Vitamin K dependent clotting factor levels) will automatically be sent for protein C antigen levels to confirm the deficiency.
2. Turn-around time for thrombophilia testing and hypercoagulability profile testing performed in the Haematology laboratory is routinely 4 weeks. If all testing is completed before the protein C antigen level is available, the results will be reported, with the protein C antigen level to follow.

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