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Comparative analysis of “APTT vs RVVT” based activated protein C resistance assay in the diagnosis of Factor V Leiden mutation

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Background: Thrombophilia is a hypercoagulable state characterized by increased venous thrombosis. The most common cause of heritable thrombophilia is Factor V Leiden (FVR506Q) homozygous state, with a relative risk of 10–80 times as compared to normal individuals and Lupus anticoagulant is the most common cause of acquired thrombophilia. The main objective of this study is to compare the sensitivity of activated partial thromboplastin time (APTT) vs dilute Russell viper venom test (DRVVT) based APCR assays with predilution in Factor V-deficient plasma for diagnosis of Factor V Leiden mutation. **Materials And Methods:** The coagulometer used for APCR test was Sysmex CS-5100. APTT reagent used is Pathrombin SL supplied by Siemens. All data were expressed as mean ± SD. Statistical analysis was done using unpaired students *t*-test and a *P* value <0.05 was considered as statistical significance. **Results:** A total of 300 cases of APCR (200 cases of Factor V Leiden mutation was confirmed by PCR and 100 acquired) were studied. The sensitivity of screening APTT-based APCR for detection of Factor V Leiden mutation is 67% and for the noncarrier state, it is 62%. The sensitivity of modified APTT and DRVVT with predilution in FV-deficient plasma for detection of Factor V Leiden mutation is 82% and 84%, respectively and for acquired causes, it is 48% and 86%, respectively**Conclusion:** Screening APTT test has increased in activated protein C resistance (APCR) due to Factor V Leiden mutation as well as acquired causes such as patients on direct-acting oral anticoagulants, warfarin, lupus anticoagulants, and oral contraceptive pills which are independent risk factors of venous thrombosis. Modified DRVVT with predilution in FV-deficient plasma is more sensitive than screening and modified APTT-based APCR test in the diagnosis of Factor V Leiden mutation and the former test can distinguish homozygous and heterozygous states from normal individuals.

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