Prothrombin Time (PT) Test

- Measures how long it takes blood to clot; prolonged times may indicate liver problems.
- The prothrombin time and International Normalized Ratio (INR) constitute critical metrics for the assessment of a patient's hemostatic function, particularly among individuals receiving vitamin K antagonists. Nevertheless, despite the utility of prothrombin time/INR in the surveillance of coagulation parameters, these measures are infrequently employed in isolation.
- The application of prothrombin time/INR is generally accompanied by activated partial thromboplastin time, which assesses the intrinsic and common pathways of the coagulation cascade. The results derived from both prothrombin time/INR and activated partial thromboplastin time are instrumental in the diagnosis of a range of hematological disorders.

Prothrombin time constitutes one of a multitude of hematological assessments routinely employed in clinical settings to ascertain the coagulation status of patients. More precisely, prothrombin time serves to assess the extrinsic and common coagulation pathways, thereby facilitating the identification of deficiencies in factors II, V, VII, and X, in addition to low concentrations of fibrinogen. Prothrombin time quantifies the duration, measured in seconds, required for plasma to coagulate subsequent to the introduction of thromboplastin (a composite of tissue factor, calcium, and phospholipid) to a patient's plasma specimen.[1,2] Various formulations of thromboplastin reagents exist but may yield disparate prothrombin time outcomes, even when the same plasma sample is utilized. In light of this variability, the World Health Organization (WHO) has instituted the international normalized ratio (INR) as the standardized reporting format for prothrombin time findings.[3] The INR embodies the ratio of the patient's prothrombin time to a control prothrombin time value derived from an internationally recognized thromboplastin reagent formulated by the WHO.[4]

Conventional laboratory coagulation-based assays have historically been employed to derive prothrombin time measurements to guarantee dependable results. Given the protracted turnaround time (up to 90 minutes), point-of-care (POC) devices (approximately 5 minutes) are increasingly favored. POC devices hold significant utility

in emergency and operating room environments where clinical diagnosis and intervention are contingent upon time constraints.[5,6] With the augmented prescription of vitamin K-antagonists such as warfarin, point-of-care devices have become more advantageous for both patients and clinicians in monitoring the efficacy of medication. Through the utilization of point-of-care devices, the oversight of anticoagulation therapy can occur within thrombosis centers, offices of primary care providers, and even by the patients themselves. Although point-of-care devices have demonstrated a tendency to underestimate hemostatic abnormalities, they are generally regarded as reliable in non-emergency contexts.[7]

References

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