Abstract:

Thromboelastometry as point-of-care (POC) testing enables the analysis of the clotting process at the bedside, providing rapid results to guide haemostatic therapy. However, POC testing utilizes medical staff who are managing critically ill patients, as non-laboratory personnel may not be sufficiently trained to run the devices. To resolve these problems, thromboelastometry can be performed in the central laboratory and rapid transport of samples can be accomplished via a pneumatic tube system (PTS). This study compares thromboelastometry parameters of blood samples analysed immediately with those analysed after PTS transport. In patients with normal haemostasis, two arterial blood samples were collected from each patient \((n=92)\) in citrated plastic tubes to investigate the assays INTEM \((n=35)\), EXTEM \((n=27)\), and FIBTEM \((n=30)\). One blood sample was analysed immediately, the other sample after PTS transport. Thromboelastometry was performed using a single ROTEM® device. The mean clot firmness values were significantly lower for PTS samples in both the INTEM (−0.7 mm cf. −1.1 mm) and EXTEM (−1.4 cf. −1.7 mm) assays. INTEM coagulation time (CT) was significantly lower in PTS samples with a mean difference of −13 s. EXTEM CT was significantly higher in PTS samples with a mean difference of +3.9 s.
parameters of blood samples analysed after PTS transport are significantly altered compared with those analysed immediately. However, in patients with normal haemostasis, the alterations were small and without clinical consequence, implying that analysis after PTS transport is an acceptable alternative to prompt analysis at the bedside. Further studies should focus on patients with impaired haemostasis.

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