The relevance of pre-operative hemostasis screening

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During the preoperative work-up of any patient undergoing surgery, an assessment of bleeding risk may be performed, but the role of laboratory testing is controversial. Borderline hemostatic abnormalities are not uncommon, most are insignificant and the probability of detecting an undiagnosed and clinically important clotting abnormality is rare. A previous history of bleeding is likely to be a more useful indicator than a preoperative haemostasis test. The United Kingdom National Institute for Health and Care Excellence (NICE) in their 2003 guideline therefore states not to consider laboratory tests of hemostasis without a specific indication (https://www.nice.org.uk/guidance/ng45/evidence/appendix-o-cg3-full-guideline-87258149466**).** There is no consensus in the guideline on the situations in which preoperative hemostasis testing is required. There may be an indication for preoperative testing in patients undergoing moderate to major surgery when patients are on anticoagulants, on hemodialysis, or undergoing specific types of surgery. The specific types of surgery include cardiac surgery, neurosurgery, and surgery involving liver function. In the 2016 update of the NICE guideline it is stated that only in certain patients with comorbidities (patients with an American Society of Anesthesiologists Physical Status Classification System (ASA) score of 3 or 4) undergoing intermediate or major surgery require hemostasis testing if they have a liver disease or are on anticoagulants. The Practice Advisory for Preanesthesia Evaluation by the American Society of Anesthesiologists (Anesthesiology 2012 Mar;116(3):522-538) states that “clinical characteristics to consider for ordering selected coagulation studies include bleeding disorders, renal dysfunction, liver dysfunction, and type and invasiveness of procedure”. It is thus not fully clear which patients may benefit from preoperative hemostasis testing, but the number of indications for preoperative testing is limited.

Routine preoperative hemostasis testing may include platelet count, prothrombin time (PT), activated partial thromboplastin time (aPTT), and fibrinogen levels. Patients with liver disease are specifically mentioned in guidelines as patients as risk for perioperative bleeding. Indeed, these patients frequently have abnormalities in all routine tests of hemostasis. However, there is no evidence that abnormalities in these tests are related to procedural bleeding risk. In contrast, there is accumulating evidence that patients with liver disease are in hemostatic balance due to simultaneous alterations in pro- and antihemostatic pathways. This hemostatic balance is not reflected in routine diagnostic tests. Experience from liver transplant surgery shows that it is safe to perform major surgery in patients with liver disease and profoundly abnormal routine hemostasis tests without preoperative hemostatic therapy. A proportion of patients can undergo liver transplant surgery without any requirement for blood product transfusion.

The relevance of pre-operative hemostasis testing, also in patients with liver disease, is therefore limited, and it is questionable whether hemostasis test are indicated in patients without a bleeding history who are not using antihemostatic drugs.