

## Peri-operative haemostasis

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The aims of this lecture are to review the mechanism of haemostasis, and to discuss how peri-operative changes of coagulation can be monitored and improved.

Peri-operative bleeding in surgical patients is a major challenge particularly due to increasing clinical use of antiplatelet and antithrombotic agents [1]. Understanding the mechanism of haemostasis is important in evaluating the preoperative bleeding risk of surgical patients, and in managing peri-operative haemostatic therapy [2]. Thrombin is the pivotal enzyme in coagulation and inflammation, and its activity is normally regulated to achieve rapid haemostasis after injury without causing uncontrolled thrombosis. During surgery, there are major disturbances in coagulation and inflammatory systems due to haemorrhage/haemodilution, blood transfusion, and surgical stresses. Postoperative

bleeding often requires allogeneic blood transfusions, which supports thrombin generation. Optimizing the balance between procoagulant and anticoagulant elements is critical to achieve haemostasis without increasing thrombotic complications including stroke and pulmonary embolism. The rationale use of coagulation tests (PT/aPTT, fibrinogen) along with other point-of-care modalities (thrombometry; ROTEM) should be considered to guide haemostatic therapies.

### References

1. Eikelboom JW, Weitz JI. New Anticoagulants. *Circulation* 2010; 121: 1523-32
2. Bolliger D, Gorlinger K, Tanaka KA. Pathophysiology and Treatment of Coagulopathy in Massive Hemorrhage and Hemodilution. *Anesthesiology* 2010; 113: 1205-19