

**Title:** Peri-operative management of fracture neck of femur patients on anti-coagulant or anti-thrombotic medication

**Key words:** Neck of femur fracture, anticoagulant, antithrombotic, guidelines

**Background:** The last decade has seen a proliferation in the number and diversity of anticoagulant and antiplatelet agents used in clinical medicine. In addition their clinical indications have expanded. This has served to increase the longevity and reduce the morbidity of patients with vascular disease including a significant number of patients who present with fragility fractures of the femoral neck. Antiplatelet agents and anticoagulants increase the risk attendant to both surgical and anaesthetic intervention. There is wide variation in clinical practice with regard to the peri-operative use of a number of anticoagulant and anti-platelet drugs, but recently multiple professional bodies have released guidelines on the management of patients requiring urgent surgery with these agents.

**Objective:** The objective of this study was to synthesise the published guidelines for the management of different antiplatelet and anticoagulant agents during the peri-operative period for patients undergoing urgent surgery into a single source for easy reference.

**Methods:** A search of Pubmed and websites of anaesthetic, medical, haematological and surgical professional societies was performed for English language guidelines for peri-operative management of patients on anticoagulant or antiplatelet agents undergoing surgery for fracture neck of femur or urgent surgery in general. Guidelines for individual agents were compiled into a single table for reference.

**Results:** Relevant guidelines were identified from the Scottish Intercollegiate Guidelines Network, Association of Anaesthetists of Great Britain and Ireland, American College of Chest Physicians, British Society of Haematologists and the American Society of Regional Anaesthesia and Pain Medicine. With the exception of the Scottish Intercollegiate Guidelines Network, guidelines related to emergency surgery rather than hip fragility fractures. A synthesis of the guidelines suggests that aspirin monotherapy should not delay surgery nor prevent neuraxial anaesthesia. clopidogrel and other P2Y<sub>12</sub> receptor inhibitors should not delay surgery and general anaesthesia is preferable to neuraxial anaesthesia. Warfarin should be reversed partially or completely with intravenous phytomenadione. Surgery should be delayed for at least 24-48 hours after the last dose of factor Xa and thrombin inhibitors.

**Conclusions:** The guidelines of professional bodies suggest that antiplatelet monotherapy should not delay surgery for fractured neck of femur and the ready reversibility of warfarin should also not delay operation. The situation regarding direct oral anticoagulants is more complicated, but antidotes to some of these medications are becoming available and may reduce the time delay required before operation for neck of femur fracture.