

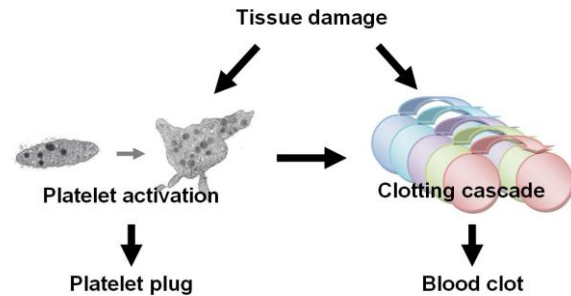
# ANTICOAGULANTS AND HAND SURGERY

## What are anticoagulants?

Anticoagulants are medicines that are used to treat and prevent harmful clots forming in your blood vessels. They make your blood less sticky and/or to take longer to clot. There are many conditions that require anticoagulants (e.g. atrial fibrillation (fast, irregular heart beat), mechanical heart valve replacement, stroke or mini-stroke, pulmonary embolism (blood clot in lung), deep vein thrombosis (DVT, blood clot in veins of leg) and certain blood clotting disorders).

## How does blood clot?

When a blood vessel is cut, the damaged tissue activates platelets (very small blood cells) to become sticky and clump together as a plug to seal the vessel. The tissue damage and the platelets also activate a series of clotting factor proteins in the blood. A cascade of reactions eventually results in the formation of a fibrin meshwork that traps platelets and blood cells to form a solid blood clot.



## How do anticoagulants work?

**Antiplatelet agents** (Aspirin, Clopidogrel (Plavix), Dipyridamole (Persantin)) inhibit platelet activation, which makes platelets less sticky and slows the clotting cascade. These effects are long-lasting, non-reversible and slow to wear off. Monitoring is not required.

**Warfarin** blocks the effects of vitamin K, which is needed to make some clotting factors. It usually takes 2-3 days for warfarin to work fully. Its effects can be partially and slowly reversed by the injection of Vitamin K. The effect of warfarin is monitored by regular blood tests that measure the INR (International Normalised Ratio). The normal INR is approximately 1.0. The target INR for patients varies according to the reason why you are on anticoagulants.

**Heparin** and related drugs (enoxaparin (Clexane), tinzaparin (Innohep), dalteparin (Fragmin)) are given in a hospital setting as an injection or through a drip into a vein. These agents inhibit part of the clotting cascade. They are fast to act and wear off within hours. They are used to reduce the risk of deep vein thrombosis in a wide range of patients and/or as a substitute for warfarin in high risk patients who normally maintain their INR at a level greater than 3.0. These patients may be monitored by blood tests around the time of surgery.

## Are anticoagulants a problem when undergoing hand surgery?

Bruising, bleeding and the collection of blood in a wound (haematoma) can occur with any operation. Studies have shown that complications after hand surgery are not increased by anticoagulants as long as the guidelines are followed and appropriate tests performed. However, it may not be possible to perform the operation under regional anaesthetic (arm numb, you awake) because of the risk of bleeding at the site of injection (upper arm/shoulder).

**Warfarin** can be continued, provided your INR test is less than 3.0. We would suggest that you have your INR checked in the community about one week before your operation. Be sure to bring your yellow book on the day of operation. We will do a further INR blood test on the day of operation. The operation is likely to be cancelled if the INR is over 3.0

**Aspirin and Clopidogrel** can be continued at normal dose without adverse effect.

**Heparin** and related drugs given in low doses as a precaution against DVT is not associated with increased bleeding risks in hand surgery. However, higher doses used in patients with mechanical heart valves or a history of thrombosis may cause bleeding at the surgical site. This may require some alterations in the operation, such as the insertion of drains, and a more cautious post-operative plan that may require a patient to remain in hospital for monitoring.

## Will I need any additional precautions after the hand surgery?

Communication is important with your surgical team after any operation. If there is any *continuous* oozing (which can lead to haematoma), or increased pain, then contact us to arrange review.