Xabans have recently reinforced the arsenal of therapeutic treatment and the prevention of venous thromboembolic disease (deep vein thrombosis and pulmonary embolism) and non-valvular atrial fibrillation (NVAF).

Contrary to heparins, low molecular weight heparins and heparinoids, these molecules are activated orally. Contrary to VKAs (modifying the synthesis of vitamin K-dependant factors) and heparins and derivatives (increasing the effect of anti-thrombin), these molecules directly inhibit the factor X active (FXa) or the thrombin or the activated factor II (FIIa) by specifically targeting the coagulation factor. These are powerful, fast-acting anticoagulants.

The medication currently approved by the governing authorities in France (AMM) are as follows:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Molecule</th>
<th>Action mechanism</th>
<th>Elimination</th>
<th>Approved by AMM for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xarelto®</td>
<td>Rivoroxaban</td>
<td>Direct anti-Xa</td>
<td>Renal to 66%</td>
<td></td>
</tr>
</tbody>
</table>
- Preventative treatment for NVAF
- Prevention of VTEDs** after PTH and PTG
- Curative treatment of VTEDs

Eliquis®
Apixaban
Direct anti-Xa
Hepatic and fecal/renal to 25%

Pradaxa®
Dabigatran
Etexilate*
Direct anti-IIa
Renal to 85%

* Dabigatran etexilate is a pro-drug: the active principle is dabigatran (weak bioavailability)

** VTED: venous thromboembolic disease
Given that they are primarily eliminated by the kidneys (particularly dabigatran and rivaroxaban), it is imperative to evaluate the patient's renal function before starting and regularly during treatment (especially in intercurrent events susceptible to disturb renal function). The use of the Cockcroft and Gault formula is recommended which considers the age and weight of the patient and which was used during clinical trials to validate the thresholds of contraindication and posology adaptations.

These drugs were put on the marked with a predefined posology according to the indication and their therapeutic monitoring is not required.

In certain circumstances (thrombosis or haemorrhages while on treatment, verification of observance, urgent surgery...), it may be necessary to know the patient's plasma concentration. Specific tests, which measure the drug concentration in ng/mL are currently available and performed by Biomnis. Depending on the context, the sample should be collected just before drug intake (residual activity) or approximately 2 hours before intake (maximal concentration). Despite fixed dosages, clinical studies have shown a wide inter-individual variability of plasmatic concentrations, which do not affect the therapeutic effectiveness and are of unknown origin. Due to their direct action of FXa or FIIa, these drugs interfere in vitro with all plasmatic coagulation tests. It is not advisable to perform routine haemostasis (PT, PTT...) or specialised (coagulation factor tests, Thrombophilia profile...) test while the patient is being treated by Direct Xa Inhibitors; it is also imperative to question the patient on their medication intake before collecting the sample.

These new molecules are revolutionising therapeutic habits, as heparins and VKAs were used for over half a century.

For further information:
Focus N° 49 - VKA