

New Perspectives in Anticoagulant Therapy

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Blood coagulation plays a central role in keeping the balance in hemostasis. Its dysfunction may lead to either thrombus formation or bleeding and is a main cause for morbidity and mortality all over the world. Clot formation in the venous system may lead to pulmonary embolism, occlusion of vessels after plaque rupture in the arterial system may cause myocardial infarction, stroke and peripheral arterial disease, whereas systemic activation of coagulation may lead to severe forms of disseminated intravascular coagulation.

For a long time, anticoagulant therapy has been dominated by drugs derived from natural anticoagulants, e.g. the heparins or warfarin. It has been a major goal in pharmaceutical industry to overcome their limitations by developing novel anticoagulants with a broad therapeutic window. These novel approaches may enable to improve the antithrombotic therapy, especially in indications with a high bleeding risk and in the growing populations with risk factors, e.g. diabetics, renal impaired patients, obese.

Recently, inhibitors of thrombin or factor Xa have shown positive results in big trials of venous and arterial thrombosis revealing their potential to change the standard of care in these important indications. First representatives of these classes have been launched. Additional approaches have been undertaken to evaluate the inhibition of upstream proteases of the coagulation cascade and the dual inhibition of thrombin and FXa. The launch of these new anticoagulants may have an impact on the use of test systems of the coagulation.