

# Bleeding news



## Interplay between platelets and coagulation: from protective haemostasis to pathological arterial thrombosis

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### Comment:

This article provides a comprehensive didactic review on the mechanisms regulating haemostasis and its transition to pathological arterial thrombosis. The authors clearly explain how the body implements a precise system—involving platelets, coagulation factors, and the vascular endothelium—to stop haemorrhages, and how these very mechanisms can turn harmful in the context of atherosclerosis.

The text highlights the central role of the healthy endothelium as a haemostatic balance regulator, as well as the role of protective molecules such as nitric oxide, prostacyclin, and different natural coagulation inhibitors. The factors altering this balance are also discussed, such as endothelial dysfunction, chronic inflammation, and the increase of hyperreactive platelets.

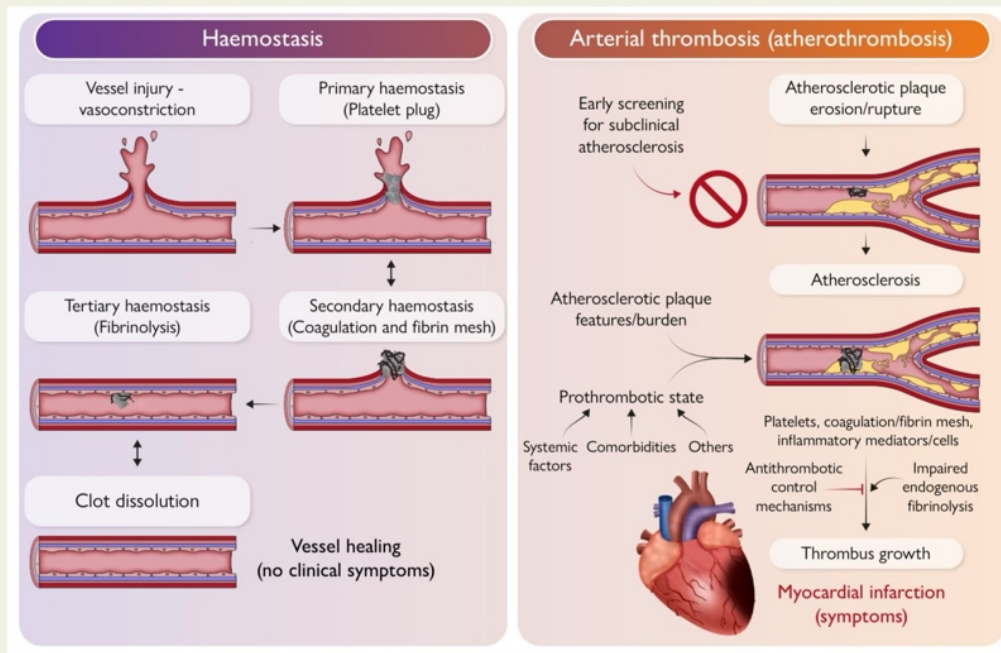
A particularly interesting aspect is the approach on emerging risk factors, such as lipoprotein(a), clonal haematopoiesis, and subclinical inflammation, contributing to a prothrombotic state even in people with no apparent clinical condition. In this context, the authors highlight the importance of subclinical atherosclerosis early detection, based on the findings of the PESA study, which shows how many apparently healthy people already present signs of a vascular condition.

As for treatment-related implications, the need to develop treatments preventing thrombosis without compromising physiological haemostasis is underlined. Some promising targets are suggested, including factor XI/XIa and platelet receptor GPVI, which when inhibited may offer antithrombotic protection with a lower risk of bleeding.

In summary, this is a highly recommended article on account of its clarity, depth, and up-to-date approach. It is valuable both in terms of pathophysiological knowledge and the development of preventive treatment strategies in the cardiovascular field.

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## Graphical Abstract



Different mechanisms that govern haemostasis and arterial thrombosis. Haemostasis is the physiological process responsible for repairing vessel injuries and preventing bleeding. It involves four major, interconnected stages: local vasoconstriction; primary haemostasis, where a platelet plug is formed; secondary haemostasis, which involves the activation of the coagulation cascade and the formation of a fibrin clot; and tertiary haemostasis, characterized by fibrinolysis, the process that breaks down the fibrin clot. In contrast, atherothrombosis is a condition characterized by the formation of a platelet-rich thrombus in response to an atherosclerotic plaque disruption. This process involves coagulation factors and the recruitment of inflammatory cells, contributing to thrombus progression and further cardiovascular complications.