Insight

What cell-derived microparticles tell us about plaque burden and cardiovascular risk.....

Platelet-derived microparticles in patients with high cardiovascular risk and subclinical atherosclerosis

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Accumulating evidence has implicated circulating microparticles (cMPS), shed as submicron vesicles from endothelial as well as from circulating cells, in the pathogenesis of cardiovascular disease (for a review see [1]). Therefore, such cMPS are not only considered to represent possible therapeutic targets but have also gained attention recently as promising biomarkers. In this issue of Thrombosis and Haemostasis Suades et al. asked the question whether patients suffering from familial hypercholesterolaemia who, despite lipid-lowering therapy, are prone to develop coronary artery disease at an early age and who are thus considered to be at high cardiovascular risk have cMPS with a particular prothrombotic signature and whether patients with evidence for lipid-rich plaques show a specific profile of cMPS regarding their prothrombotic protein content (2). Indeed the authors found that these patients have higher numbers of platelet-derived and monocyte-derived tissue factor-expressing cMPS, than healthy controls. In addition the authors could show that platelet-derived microparticles are associated with plaque burden in these patients and that they have an incremental prognostic value in predicting lipid-rich atherosclerotic plaques in addition to a traditional risk factor model that included LDL-cholesterol, LDL/HDL ratio, CRP and systolic blood pressure. Taken together, these observations suggest a possible implication of circulating procoagulant microparticles shed from monocytes and platelets in the development and progression of atherosclerosis and premature coronary artery disease in patients suffering from familial hypercholesterolaemia at high cardiovascular risk and that the latter type of microparticles might be a useful biomarker for risk prediction in these patients. This later notion, however, needs to be confirmed in prospective clinical studies and in larger numbers of patients using standardised protocols for microparticle determination and measurement in plasma (3, 4).

Conflicts of interest
None declared.

References