

Vulnerable Plaque; What Happens in the Coronary Arteries

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Prediction and prevention of ACS is an important issue for cardiologists. However, coronary angiography does not work for this issue. Intravascular imaging can help predict ACS. IVUS-attenuated plaque, VH-TCFA, angioscopy-intensive yellow plaques, NIRS-LRP, CT-low-attenuation plaques, MRI-high-intensity plaque are recognized as vulnerable plaque with increased risk of future coronary events. In addition, the high-resolution OCT allows more accurate detection of vulnerable plaques. OCT studies have shown that TCFA, lipid-rich plaque, macrophages accumulation, healed plaque, and intraplaque hemorrhage are significantly associated with future coronary events. To prevent future ACS events, lipid lowering therapy is effective. Intensive lipid-lowering therapy with statins and/or PCSK9 inhibitors leads to plaque stabilization. Recent OCT and IVUS studies have demonstrated that a significant decrease in serum LDL-C results in a greater increase in fibrous cap thickness and a greater decrease in plaque volume. In conclusion, patients with TCFA or lipid-rich plaque detected by coronary imaging have an increased risk of future coronary events. Based on risk stratification by coronary imaging, intensive lipid-lowering therapy should be initiated as early as possible to stabilize vulnerable plaques and reduce the risk of adverse coronary events.