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Optical Coherence Tomography Capabilities for Early Stent Thrombosis after Primary Percutaneous Coronary Intervention

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Early stent thrombosis is a life-threatening complication of primary percutaneous coronary intervention, which manifests itself in the clinical picture of recurrence of myocardial infarction. The frequency of early stent thrombosis after the primary PCI is significantly higher than in the intervention for stable coronary heart disease and in large registers reaches 3.5%, the lethality, according to various reports, is 20-40%. Angiography is limited in the ability to determine the causes of early stent thrombosis.

The aim was to identify the benefits of optical coherence tomography (OCT) in determining the causes of early stent thrombosis after the primary PCI.

Methods: PCI was performed by transradial access. 25 patients (15 men and 10 women) with early stent thrombosis were performed OCT in re-intervention after predilatation with a small coronary balloon catheter and restoration of antegrade blood flow.

Results: All patients received anti platelet and anticoagulant therapy in accordance with standards. At primary PCI in target lesion were implanted BMS and DES in the ratio 1:1. At repeated intervention in all cases, total thrombosis of the stented segment, peripheral blood flow TIMI 0 were observed. According to OCT, significant stent mal position was detected in 12 cases, which was eliminated by post-dilating with a larger diameter balloon catheter, in 7 cases an additional stent was implanted due to protrusion of thrombotic masses. In the group with stent malposition, the phenomenon of "slow flow" was developed in 5 cases, GP IIb/IIIa blockers were not used. Edge dissection was detected in 3 cases, it was eliminated by implantation of an additional stent. The coronary blood flow was restored TIMI 3. The under expansion of the stent after the primary PCI was revealed in 5 cases, it was eliminated by post-dilating with a larger balloon catheter. Coronary blood flow was restored TIMI 3.

Conclusion: OCT allows to establish the reasons and choose a therapeutic tactic for early stent thrombosis after the primary PCI.