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Acute and Stable Ischemic Heart Disease

IMPACT OF PLATELET-FIBRIN CLOT STRENGTH ON OCCURRENCE OF IN-STENT RESTENOSIS IN PATIENT WITH DRUG ELUTING STENT

Poster Contributions
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Background: "Platelet-Fibrin Clot Strength" is considered an absolute strength of the hemostatic plug and has a potential to increase in-stent restenosis (ISR). There are no studies to evaluate this issue after DES.

Methods: We prospectively enrolled DES-treated patients who underwent follow-up angiography due to cardiac symptom and/or sign (n=289). "Clot Strength" was assessed by thromboelastography (TEG®)-maximal amplitude ($MA_{thrombin}$) and platelet reactivity was evaluated with VerifyNow.

Results: The 88 patients (30.4%) had ISR (> 50% diameter stenosis). There was no difference in VerifyNow-PRU between patients with vs. without ISR (p=0.608). ISR patients showed a higher level of TEG®-$MA_{thrombin}$ compared with no ISR patients (67.2±7.2 vs. 63.8±9.7 mm; p=0.003). ISR risk was increased proportionally according to TEG®-$MA_{thrombin}$ quartile (p< 0.001). In multivariate analysis, the highest quartile of TEG®-$MA_{thrombin}$ (> 70.0mm) was a main predictor for ISR (OR: 5.13; 95% CI: 1.49 - 17.54; p= 0.010) (Figure). When comparing predictive ROC curves, biochemical model showed the better discriminative power than angiographic model (C-statistic: 0.772 vs. 0.685; p= 0.032). Furthermore, combined model (C-statistic: 0.796) did not improve risk stratification compared with biochemical model alone (p= 0.260).

Conclusions: This is the first study to show the impact of "Clot Strength" on ISR in DES-treated patients. Biochemical risk factors would be more important than angiographic characteristics.