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Stable Ischemic Heart Disease

CONTRIBUTION OF NEOINTIMAL HEMORRHAGE TO IN-STENT ATHEROMA FORMATION AND AGGRESSIVE NEOINTIMAL HYPERPLASIA AFTER FIRST-GENERATION DRUG-ELUTING STENT IMPLANTATION

Poster Contributions
Hall C
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Background: It is known that intraplaque hemorrhage stimulates atherosclerotic plaque progression and its destabilization. However, the impact of neointimal hemorrhage on the degree and morphology of neointimal hyperplasia (NIH) is less certain.

Methods: Thirty-six randomly selected stented sections of 11 first-generation drug-eluting stents (DES) from autopsy hearts were reviewed and analyzed. Of those, histomorphometry was performed on 27 stented sections in which percent NIH >30%. Neointimal hemorrhage was defined as red blood cell extravasation within the in-stent NIH. The NIH thickness and the aggregation of cholesterol clefts were assessed. According to the duration of DES implantation, all sections were divided into two groups: early group (≥3years, n=9) and late group (>3years, n=18).

Results: The neointimal hemorrhage was a common finding in the late than in the early groups (72% vs. 11%, $p<0.05$). The aggregate of cholesterol clefts was frequently identified in the late compared to the early groups (17% vs. 0%). Moreover, the NIH thickness was significantly greater in the late than in the early groups (219±35 vs. 459±207 μm, $p<0.05$).

Conclusions: By contributing to the deposition of cholesterol clefts, the neointimal hemorrhage may accelerate NIH in the late phase of DES. These factors may stimulate atherosclerotic change of neointima.