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Titel des Beitrags: A qualitative and quantitative angiographic analysis of stent fracture late following sirolimus-eluting stent implantation.

Abstract: Repetitive mechanical forces within the coronary artery may result in stent fracture after stent implantation, particularly in patients with complex coronary disease. This study sought to estimate the incidence of Cypher stent fracture in patients with moderately severe coronary disease and to identify the angiographic predictors of fractures in patients identified in a global Cypher fracture registry. Stent fracture analysis was performed in 305 patients treated with the Cypher stent in SIRIUS and in 39 patients with stent fractures reported in the Cypher fracture registry. Fractures were classified as isolated strut fractures (type 1, single-strut fracture; type 2, incomplete transverse fracture) and stent fracture (type 3, complete transverse fracture without displacement; type 4, transverse fracture with displacement). Isolated strut fractures were identified in 4 patients (1.3%) enrolled in SIRIUS (type 1 1.0%, type 2 0.3%); no stent fractures were identified. In 39 patients with 44 clinically reported Cypher fractures, isolated strut fractures were present in 15.4% (all type 2) and stent fractures were found in 84.6% (type 3 38.4%, type 4 46.2%). Compared with patients in SIRIUS, patients with clinically reported fractures had much greater lesion complexity, including extensive calcification, angulation $\geq$ 45 degrees, lesion length $\geq$ 20 mm, proximal vessel tortuosity, total occlusions, and an ostial location.
Clinically reported fractures were associated with a high rate of repeat target lesion revascularization (52.6%). In conclusion, stent fracture after Cypher stent placement occurs more often in patients with "ultra"-complex coronary anatomy, but is an uncommon event in patients treated with mild to moderate lesion complexity.