Clinical and angiographic predictors of recurrent restenosis after percutaneous transluminal rotational atherectomy for treatment of diffuse in-stent restenosis

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Due to the widespread use of stents in complex coronary lesions, stent restenosis represents an increasing problem, for which optimal treatment is under debate. "Debulking" of in-stent neointimal tissue using percutaneous transluminal rotational atherectomy (PTRA) offers an alternative approach to tissue compression and extrusion achieved by balloon angioplasty. One hundred patients (70 men, aged 58 +/- 11 years) with a first in-stent restenosis underwent PTRA using an incremental burr size approach followed by adjunctive angioplasty. The average lesion length by quantitative angiography was 21 +/- 8 mm (range 5 to 68) including 22 patients with a length > or = 40 mm. Twenty-nine patients had complete stent occlusions with a lesion length of 44 +/- 23 mm. Baseline diameter stenosis measured 78 +/- 17%, was reduced to 32 +/- 9% after PTRA, and further reduced to 21 +/- 10% after adjunctive angioplasty. Primary PTRA was successful in 97 of 100 patients. Clinical success was 97%, whereas 2 patients developed non-Q-wave infarctions without clinical sequelae. Clinical follow-up was available for all patients at 5 +/- 4 months without any cardiac event. Angiography in 72 patients revealed restenosis in 49%, with necessary target lesion reintervention in 35%. The incidence of rerestenosis correlated with the length of the primarily stented segment and the length of a first in-stent restenosis. Thus, PTRA offers an alternative approach to treat diffuse in-stent restenosis. Neointimal debulking of stenosed stents can be achieved effectively and safely. PTRA resulted in an acceptable recurrent restenosis rate in short and modestly diffuse lesion, whereas the restenosis rate in very long lesions remains high despite debulking.

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