Chronic Total Occlusions

Treatment of Chronic Total Occlusions in Native Coronary Arteries by Drug-coated Balloons Without Stenting

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Background:
Chronic total occlusions remain one of the biggest challenges for interventional cardiologists. Even though success rates and long-term outcome improved over the last decade, the higher risk of restenosis and stent thrombosis is still a major problem. Drug-coated balloons showed favorable results for the treatment of in-stent restenosis and other lesion types with a low incidence of restenosis and adverse cardiac events. The aim of this study was to evaluate the feasibility and short-term outcome of a drug-coated balloon only approach in patients with chronic total occlusion.

Methods:
We included 34 patients with a native chronic total occlusion treated only by drug-coated balloons without bail-out stenting. A visual residual stenosis of 30% or less without major dissection (type C or higher) was considered a satisfactory percutaneous intervention result according to the German Consensus Group recommendations and the criteria used in the CADDILAC study. Baseline clinical and procedural data as well as clinical data at follow-up were collected. Angiograms were conducted before and immediately after the procedure and at follow-up. Quantitative coronary analysis of all angiograms was performed by independent investigators and mean and minimal lumen diameter and late luminal gain were assessed.

Results:
The recanalization was considered satisfactory according to the German Consensus Group recommendations in 79.4% (n=27). Restenosis occurred in 11.8% (n=4) and reocclusion in 5.9% (n=2). Out of the 27 patients with a satisfactory initial predilatation result 3.7% (n=1) had reocclusion and 3.7% (n=1) had restenosis. Major adverse cardiac events occurred in 17.6% (n=6) of all patients and in 7.4% (n=2) of patients with satisfactory predilatation results. Mean late luminal gain was 0.11 ± 0.49 mm and mean angina class improved significantly from 2.45 ± 1.02 before intervention to 1.39 ± 0.92 at follow-up (p<0.001). There was no death and no myocardial infarction.

Conclusion:
Drug-coated balloon angioplasty without stenting is a feasible and well-tolerated treatment method in patients with chronic total occlusion if the predilatation result is sufficient according to the German Consensus Group recommendations.