Effects of gold coating of coronary stents on neointimal proliferation following stent implantation


Experimental studies suggest a reduced neointimal tissue proliferation in vascular stainless steel stents coated with gold. This prospective multicenter trial evaluated the impact of gold coating on neointimal tissue proliferation in patients undergoing elective stent implantation. The primary end point was the in-stent tissue proliferation measured by intravascular ultrasound at 6 months comparing stents of identical design with or without gold coating (Inflow). Two hundred four patients were randomized to receive uncoated (group A, n = 101) or coated (group B, n = 103) stents. Baseline parameters did not differ between the groups. Stent length and balloon size were comparable, whereas inflation pressure was slightly higher in group A (14 +/- 3 vs 13 +/- 3 atm, p = 0.013). Procedural success was similar (A, 97%; B, 96%). The acute angiographic result was better for group B (remaining stenosis 4 +/- 12% vs 10 +/- 11%, p = 0.002). Six-month examinations revealed more neointimal proliferation in group B. By ultrasound, the neointimal volume within the stent was 47 +/- 25 versus 41 +/- 23 mm(3) (p = 0.04), with a ratio of neointimal volume-to-stent volume of 0.45 +/- 0.12 versus 0.40 +/- 0.12 (p = 0.003). The angiographic minimal luminal diameter was smaller in group B (1.47 +/- 0.57 vs 1.69 +/- 0.70 mm, p = 0.04), with a higher late luminal loss of 1.17 +/- 0.51 versus 0.82 +/- 0.56 mm (p = 0.001). Thus, gold coating of the tested stent type resulted in more neointimal tissue proliferation.