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Autor(en) des Beitrags: Ribichini, F; Joner, M; Ferrero, V; Finn, AV; Crimins, J; Nakazawa, G; Acampado, E; Kolodgie, FD; Vassanelli, C; Virmani, R

Titel des Beitrags: Effects of oral prednisone after stenting in a rabbit model of established atherosclerosis.

Abstract:

OBJECTIVES: The aim of this study was to compare the effects of systemic prednisone in combination with a bare-metal stent (BMS) or a paclitaxel-eluting stent (Taxus, Boston Scientific Corp., Natick, Massachusetts) on neointimal inhibition and vessel healing in an atherosclerotic rabbit model.

BACKGROUND: Inflammation plays a critical role in neointimal formation after coronary artery stenting. The efficacy of immunosuppressive doses of oral prednisone to inhibit in-stent neointimal proliferation was compared with BMS and with a commercially available paclitaxel-eluting stent (Taxus) in a rabbit model of established atherosclerosis.

METHODS: Bilateral iliac artery injury in atherosclerotic New Zealand White rabbits fed an atherogenic diet was followed by stent implantation. Animals randomly received Taxus stents, BMS (Express, Boston Scientific Corp.) and placebo, or BMS and oral prednisone (2.1 mg/kg/day for the first 7 days, followed by 1.4 mg/kg/day for 14 days and 0.7 mg/kg/day for 21 days). Stented arterial segments were harvested at 42 days and processed for light microscopy, immunohistochemistry, and organoid culture. RESULTS: Compared with control subjects, prednisone-treated animals showed a 30% reduction in percent stenosis (p = 0.009), a 35% decrease in neointimal area (p< 0.003), and a 66%
decrement in neointimal thickness (p< 0.001). Taxus stents also reduced all 3 parameters significantly (-34%, -39%, and -83%, respectively), but showed significantly more inflammatory cells and fibrin deposition and less endothelialization compared with the other 2 groups. Plaque burden was equal among groups, as shown by the identical stent and vessel area, and no remodeling was observed.

CONCLUSIONS: Systemic prednisone treatment and Taxus stents reduce neointimal formation compared with BMS. The extent of neointimal reduction is similar between prednisone- and Taxus stent-treated animals; however, Taxus stents resulted in a significantly greater delay in healing. Targeting of inflammatory pathways after percutaneous coronary intervention may be an efficacious way to prevent restenosis without the long-term risk of late thrombosis.