Angiographic time course of in-stent restenosis with zotarolimus drug-eluting stents

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A 72-year-old man with severe disease of the left anterior descending artery (LAD) underwent elective stenting of the mid-LAD (Figure 1A) using four Endeavor zotarolimus-eluting stents (Medtronic Inc, USA) (Figure 1B). Re-presentation with an acute coronary syndrome two weeks later led to repeat coronary angiography, which showed

widely patent stents (Figure 1C). Residual disease in the proximal LAD was stented at this time. Three weeks later, coronary angiography was repeated due to further hospitalization with chest pain. This showed no evidence of restenosis (Figure 1D). After a further eight weeks, the patient re-presented again with chest pain. Coronary angiography at this time showed subtotal occlusion in the mid-LAD due to severe in-stent restenosis, with sluggish flow in the distal LAD (Figure 1E). The lesion was successfully treated with further stent placement.

The time course of restenosis within different drug-eluting stents is incompletely understood. The present angiographic series clearly shows that restenosis occurred exclusively between days 33 and 91. Drug elution from the Endeavor stent occurs rapidly, within three weeks of implantation, which may explain the observed absence of early restenosis but failure to prevent its later development.

Figure 1 A Preintervention. B Postintervention, day 0. C Recurrent acute coronary syndrome, day 14 (arrow indicates residual disease). D Repeat angiogram, day 33. E Severe in-stent restenosis, day 91

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