Editorial

Which Stent for In-Bare-Metal Stent Restenosis?

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Management of in-stent restenosis remains a problem.[1-3] Although bare-metal stents provide excellent angiographic results, high restenosis rates still shadow these results. The superiority of drug-eluting stents compared with balloon angioplasty and vascular brachytherapy for the treatment of patients with in-stent restenosis has been shown in randomized trials.[4-6]. At present, drug-eluting stents represent the therapy of choice for in-stent restenosis.[1-6]

The Firebird™ sirolimus eluting stent (Microport Co. Ltd., Shanghai, China) combines a stainless steel platform (L316) of thin struts (0.0040"), a powerful antiproliferative agent (sirolimus, at a dose of 9 μg/mm^2) and a coating that includes three layers of a durable polymer, that controls drug release. Since the Firebird™ drug-eluting stent was approved by Chinese SDA (State Drug Administration) for commercial use in the beginning of 2005, the penetration of this drug-eluting stent use accounted for 28%-30% (personal communication) in China because of promising clinical results from using this drug-eluting stents.[7-11] However, no published data appeared regarding its performance in treating in-stent restenosis.

In this issue of the **Revista Brasileira de Cardiologia Invasiva**, Freitas et al.[12] presented their one year angiographic and ultrasonographic follow-up results of treating in-stent restenosis with the Firebird™ sirolimus eluting stent. This study show that the late luminal loss was 0.30 ± 0.24 mm, and no case of binary restenosis was identified at 12 months. And on intravascular ultrasound, the percentage of in-stent volumetric obstruction was 2.6 ± 1.9%. Accordingly, the authors concluded that the Firebird™ sirolimus eluting stent showed favorable angiographic and ultrasound results for the treatment of bare metal in-stent restenosis at 1 year follow-up. More recently, Liistro et al.[6] confirmed 4-year effectiveness and safety of sirolimus eluting stent implantation for coronary in-stent restenosis. Therefore, sirolimus eluting stents are currently considered the best possible care in the treatment of in-stent restenosis, especially in patients with bare-metal stents.

However, this study is inherently limited by a lack of valid control groups which did not enable a direct comparison with another drug-eluting stents. Another major limitation is small cohort of patients and relative shorter clinical follow-up, which did not allow a real estimation of the late catch-up phenomenon with drug-eluting stents in in-stent restenosis lesions.

Finally, two points are worth to be noted. First, although drug-eluting stents have dramatically reduced the rates of in-stent restenosis compared with bare-metal stents, a low rate of in-stent restenosis after drug-eluting stents still exists, and its prevalence is not negligible because the population treated with drug-eluting stents is large. Second, drug-eluting stents implantation after in-stent restenosis may further reduce the flexibility of the vessel and limit the repeatability of the procedure. Furthermore, concerns have been raised that such drug-eluting stents require long-lasting antiplatelet therapy to avoid late thrombotic complications. Treatment of coronary in-stent restenosis with the paclitaxel-coated balloon was at least as efficacious and as well tolerated as the paclitaxel-eluting stent and inhibition of re-restenosis does not require a second stent implantation.[13]

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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