Cutting Balloon for Peripheral Arterial and Venous Lesions: Value and Limitations

NOTES

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Cutting balloons were first approved by the US Food and Drug Administration in 2000. Originally developed for the coronary circulation, they have gained increasing popularity in the peripheral, carotid, and visceral circulations. These balloons theoretically induce less arterial trauma by incising the arterial wall with several longitudinally directed scalpels. These incisions serve to reduce any resistance to expansion.

Methods

A prospective trial was initiated at Maimonides Medical Center to study the outcome of cutting balloon angioplasty (CBA) in the areas of restenosis and heavy calcification.

Results

Over the course of 1 year, 18 patients underwent CBA. Fifteen of the procedures were on the infrainguinal circulation, and 3 were on failing arteriovenous fistulae. There were no technical failures, but one patient had a rupture at the site of angioplasty, requiring open repair. Over the period of follow-up, there were no instances of restenosis at the site of angioplasty.

Conclusions

Cutting balloons represent a promising advance in endovascular technologies. In short-term follow-up, they result in a low rate of restenosis. There is, however, a potentially increased risk of complications with their use. These complications include vessel wall rupture and "balloon trapping." Longer-term prospective randomized trials appear justified to further evaluate this promising new technology.