

Clinical Benefit of Long-Length Drug-Coated Balloons

The anatomic factors that make longer DCBs the ideal choice for treating longer, more difficult lesions.

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The use of drug-coated balloons (DCBs) to prevent restenosis has increasingly become the standard therapy in femoropopliteal artery disease.¹ This shift in preference toward DCBs has been driven by positive data from both randomized controlled trials, which have included primarily TASC A and B lesions, as well as all-comer, single-arm studies that have shown excellent results in long lesions, total occlusions, and even in in-stent restenosis.² These studies also showed excellent results for DCBs in long lesions, total occlusions, and even in in-stent restenosis. Nevertheless, there is no class effect of DCBs; some are simply more effective than others.

TREATING THE ENTIRE LESION

Although different types of lesions have been extensively studied to understand their susceptibility to restenosis after 1, 2, and 3 years, little is known about the variables encountered during the intervention. It seems to be that even though predilation is recommended when DCBs are used, patients who did not receive predilation have similar outcomes compared with those who received vessel preparation. Nevertheless, several modes of failure are possible for the intervention. Undersizing has been identified as one factor related to the inferior outcome of the Lutonix DCB (Bard Peripheral Vascular, Inc.) in the LEVANT I study.³ Besides undersizing the DCB, a mismatch of DCB therapy following predilation was found to create a so-called edge phenomenon. If the length of the DCB does not reach the length of predilation, those areas without DCB coverage will have the same results as if plain balloon angioplasty alone were used. In the areas that do not receive drug delivery, the restenosis rate is much higher compared to the vessel areas where there is DCB coverage.

The problem of drug coverage is an even greater issue in longer lesions. DCBs can only be used once, since most of the drug is gone from the surface of the balloon after the first inflation. This means that multiple short DCBs must be used to treat longer lesions, which results in multiple device exchanges. Because DCBs leave no marker behind to indicate where the lesion has been treated, in a scenario in which multiple DCBs are used, it becomes more likely that the edges of the lesion are undertreated and/or portions of the lesion are treated multiple times with drug due to overlapping of the DCBs. This limitation has recently been overcome by the development of longer-length DCBs. For example, the Ranger DCB (Boston Scientific Corporation) is now available in lengths up to 200 mm. With the use of these balloons in longer lesions, the problem of mismatch within the lesion has been solved, and the treatment is also quicker and easier.

CONCLUSION

In summary, longer-length DCBs have a more predictable outcome. In addition, they save on time and costs during the endovascular procedure. Therefore, the addition of such longer-length devices are quite a beneficial tool. ■

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