

12-Month Results from the Multicenter LOCOMOTIVE Study: Should We All Jump on this Bandwagon?

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In this issue of CVIR, Sigl et al. [1] present the 12-month results of a study using the Multi-LOC system in complex femoropopliteal lesions. Only when reading this together with the first publication [2], evaluating the 6-month outcomes with this multiple stent delivery system, a good indication of the potential advantages and the working mechanism of this device can be obtained.

Over the last years, especially after the drug-coated balloon (DCB) revolution, the interest in a “leaving nothing behind” or “leave something but as little as possible behind” has increased significantly [3, 4]. It has been shown that with increasing lesion complexity the rate of bailout stenting typically increases, but bailout stenting rates can be as low as 10.5% when proper technique (i.e., long inflation times) is used (with primary patency and freedom from clinically driven TLR of 83.2% and 96%, respectively) [5]. Unfortunately, in both papers reporting on the Multi-LOC device no details on procedural technique (including inflation times) are presented.

The promising results with the Multi-LOC as described in this issue (primary patency of 85.7% and TLR rate of 9.3% at 12 months in patients with a mean lesion length of 14.5 ± 9.0 cm) need to be put in perspective with some of the recently published results from several large registries regarding DCB use in complex femoropopliteal lesions

(with a similar or longer lesion length as in the Multi-LOC registry) as well as the results obtained with the TACK device (Intact Vascular, Wayne, PA). The TOBA registry data with the latter device (after POBA) reported a 12-month primary patency of 76.4% and freedom from TLR of 89.5% [6]. Although the lesion length in the TOBA registry was only 51.4 mm, it needs to be kept in mind that in the Multi-LOC study in 22.8% of the cases DCB was used (and this may have influenced the outcomes positively). The recently published data of the IN.PACT Global long lesion imaging cohort reported a lesion length of 26.4 cm and a primary patency rate of 91.1% [7]. In this cohort, stenting rate was high with 39.4%, but full lesion stent coverage was performed in only 33.3% of these, while spot stenting was performed in 28.6% of stented cases. Similar results were described in the Lutonix Global study [lesion length 101.2 mm, primary patency and freedom from TLR at 2 years of 85.4% and 93.4%, respectively, with a total (spot) stenting rate of 25.2%] [8]. Overall similar results can thus be obtained in complex lesions of the SFA when using DCB angioplasty with a relatively low percentage of bailout stenting. In the Multi-LOC study, all patients received 1 or more stents (reducing the overall stented length), and provisional stenting in a strict sense was therefore not performed (although the conclusion mentions this was the case).

The authors briefly mention the “edge effect” that may occur after stenting. This does not only occur after balloon-expandable stents, but also after self-expandable stents such as the Viabahn as correctly pointed out. The edge effect after Viabahn is mainly related to oversizing, and not to runoff (although poor runoff will have an effect on the patency) [9]. It is also known that stent implantation induces a decrease in laminar flow and that these flow

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disturbances and resulting pressure gradients may influence the formation of neointimal hyperplasia [10]. Furthermore, stenting reduces vessel compliance immediately after deployment, and this diminished compliance increases the impedance to blood flow by increasing loss of pulsatile energy in the wall [11]. This may result in decreased distal perfusion, increased pressure wave reflection and increased pulsatile mechanical stresses at the interface between noncompliant stented vessel and native artery. It is unclear what the hemodynamic consequences of multiple short stents are, and although the currently presented results seem to be promising, long-term results need to be awaited. Stent fractures are only briefly mentioned in the 6-month data paper (although not being one of the endpoints) and are not mentioned at all in this paper, which is an omission (although probably the fracture rate will be low to zero). The last unaddressed issue is related to the treatment of occlusions after use of the investigational device: anecdotal reports on difficulty to remain “intra-luminal/intra-stent” in cases of Multi-LOC occlusion exist, and therefore, reintervention may be more complex.

The use of the Multi-LOC device yields promising preliminary results; however, several questions as mentioned above remain, and therefore, it is too early to jump on this bandwagon yet. Only a head-to-head comparison of various treatment modalities will be able to shed a light on which treatment option is preferable for complex femoropopliteal disease.

Compliance with Ethical Standards

Conflict of interest The author declares that he has no conflict of interest.

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