

Covered Versus Bare-metal Stents for Iliac Occlusive Disease

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Editorial

Since covered stents with polytetrafluoroethylene (PTFE) have been associated with less neo-intimal hyperplasia, leading to lower restenosis rates, several authors have published comparative data of covered versus bare-metal stents for iliac occlusive disease [1-3].

Angioplasty, using mechanical lumen enlargement with balloon or stents lead to internal elastic lamina fracture and medial dissection. Subsequently, many processes contribute to restenosis of the affected vessel [4]. Early elastic recoil and late reorganization of thrombus, cell proliferation and migration contribute in the pathogenic processes called in-stent stenosis. Thus, a negative remodelling is a major cause of human angioplasty restenosis [4,5]. Besides well-established biochemical pathways (e.g., drug-coated devices), covered stents may provide a mechanical approach to avoid restenosis.

Iliac artery atherosclerotic disease may cause intermittent claudication and chronic limb-threatening ischemia. It can further lead to complications such as infection, amputation and even death. Endovascular repair has become the first choice of treatment for iliac arterial occlusive disease [6]. However, no definitive consensus has reached about the best endovascular strategy and which type of stent, if any, to use. In more advanced disease, involving Transatlantic Inter-Society Consensus (TASC) C and D, long or multiple stenosis or occlusions, literature is most supportive of primary stenting with a balloon-expandable stent in the common iliac artery [7]. However, only one randomized controlled trial has been published on this stent in the common iliac artery [8]. Although no clear evidence exists that covered stents are associated with better patency rates in aorto-iliac occlusions, several studies found a difference in TASC C and D lesions in favour of covered stents [9].

Especially in the last two decades, endovascular repair has become the first choice of treatment for iliac atherosclerotic disease, after endovascular revolution. Historically, open surgical repair, was the standard way to treat iliac occlusions. There are no doubt that all those publications showed that both, covered and bare-metal stents can be used with good results for occlusive disease [5-8]. Although covered stents have broadly

been associated with favourable results especially in restenosis, repeated interventions, and in complex lesions [5,7-9], there are also contradictory publications [10]. Available publications did neither include calcification or calcium analyses in the iliac arteries, nor did they show how the stratification between covered or uncovered stents was realized, nor subgroup analyses (e.g., size of the lesions, localizations, common or external iliac artery, occlusion versus stenosis). High-quality evidence supporting the use of covered stents for aorto-iliac occlusive arterial disease remains limited. More research is needed to identify specifically which lesion characteristics might benefit most from covered stent placement. While evidence from high quality randomized controlled trials is still lacking, international registry collaborations such as the VASCUNET or the International Consortium of Vascular Registries (ICVR) may provide real-world-evidence data to close the gap of knowledge [11].

References

1. Dolmatch B, Dong YH, Heeter Z (2007) Evaluation of Three Polytetrafluoroethylene Stent-Grafts in a Model of Neointimal Hyperplasia. J Vasc Interv Radiol 18: 527-534.
2. Marin ML, Veith FJ, Cynamon J, Parsons RE, Lyon RT, et al. (1996) Effect of polytetrafluoroethylene covering of Palmaz stents on the development of intima hyperplasia in human iliac arteries. J Vasc Interv Radiol 7: 651-656.
3. Virmani R, Kolodgie FD, Dake MD, Silver JH, Jones RM, et al. (1999) Histopathologic evaluation of an expanded polytetrafluoroethylene-nitinol stent endoprosthesis in canine iliofemoral arteries. J Vasc Interv Radiol 10: 445-456.
4. Bennett MR (2003) In-stent stenosis: pathology and implications for the development of drug eluting stents. Heart 89: 218-224.
5. Waller BF, Pinkerton CA, Orr CM, Slack JD, VanTassel JW, et al. (1991) Restenosis 1 to 24 months after clinically successful coronary balloon angioplasty: a necropsy study of 20 patients. J Am Coll Cardiol 17: 58-70.
6. Aboyans V, Ricco JB, Bartelink MEL, Björck M, Brodmann M, et al. (2018) Editor's Choice: 2017 ESC Guidelines on the Diagnosis and Treatment of Peripheral Arterial Diseases, in collaboration with the European Society for Vascular Surgery (ESVS). Eur Heart J 55: 305-368.

7. Bekken JA, Vos JA, Aarts RA, de Vries JP, Fioole B (2012) DISCOVER: Dutch Iliac Stent trial: Covered balloon-expandable versus uncovered balloon-expandable stents in the common iliac artery: study protocol for a randomized controlled trial. *Trials* 13: 215.
8. Mwipatayi BP, Thomas S, Wong J, Temple SE, Vijayan V, et al. (2011) A comparison of covered vs. bare expandable stents for the treatment of aortoiliac occlusive disease. *J Vasc Surg* 54: 1561-1570.
9. Bekken JA, Jongasma H, Fioole B (2018) The use of covered stents in aortoiliac obstructions: a systematic review and meta-analysis. *J Cardiovasc Surg (Torino)* 59: 14-25.
10. Humphries MD, Armstrong E, Laird J, Paz J, Pevec W (2014) Outcomes of Covered versus bare-metal balloon expandable stents for aortoiliac occlusive disease. *J Vasc Surg* 60: 337-344.
11. Behrendt CA, Venermo M, Cronenwett JL, Sedrakyan A, Beck AW, et al. (2019) VQI and the International Consortium of Vascular Registries – unique collaborations for quality improvement in vascular surgery. *Eur J Vasc Endovasc Surg*. In Press.