

# Journal of Vascular Surgery – December 2021

## Audiovisual Summary

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Hello! My name is Peter Lawrence and I am pleased to introduce the December issue of the *Journal of Vascular Surgery* and highlight four outstanding papers which are freely available for the next 2 months.

Our Editor's Choice article is "Cost-effectiveness of transcatheter aortic valve replacement versus aortic valve surgery," by Christina Cui and co-authors.<sup>1</sup> They conducted a cost-effectiveness analysis comparing transcatheter aortic valve replacement (TAVR) to aortic valve surgery (AVS) for symptomatic patients with aortic stenosis. They used a Markov simulation, with quality adjusted life-years, costs, and incremental cost-effectiveness ratio over a 5-year period. For symptomatic patients, AVS cost \$7821 for 2.85 quality-adjusted life years (QALYs), while TAVR cost \$19,154 for 2.92 QALYs, leading to an initial incremental cost-effectiveness ratio of \$152,229 per QALY in the TAVR arm. The study found that while 5-year costs for TAVR were greater than AVS, TAVR afforded greater QALYs than AVS and that TAVR became cost-effective at 6 years of follow-up.

The next article is "Preoperative and postoperative predictors of clinical outcome of fenestrated and branched endovascular repair for complex abdominal and thoracoabdominal aortic aneurysms in an Italian multicenter registry," by Gallitto et al.<sup>2</sup> The authors reported an Italian experience from four academic centers that evaluated predictors of outcome with repair of complex aortic aneurysms, including juxtarenal, pararenal, and thoracoabdominal aortic aneurysms (TAAAs). Five hundred and ninety-six patients underwent fenestrated and branched endovascular repair (F/B-EVAR) for 124 juxtarenal AAAs (JAAAs), 121 pararenal AAAs (PAAAs), and 351 TAAAs. Elective procedures were performed in 87% and were urgent in 13%. Postoperative cardiac, pulmonary, and renal complications were reported in 7%, 8%, and 13%, respectively, while 1% had bowel ischemia and 4% cerebrovascular complications. Eight percent suffered spinal cord ischemia (SCI), with 3% having permanent paraplegia. Crawford's extent I-II-III TAAAs and postoperative renal complications independently predicted SCI with odds ratios of 13.41 and 3.84, respectively. Five percent of patients died in the perioperative period; preoperative chronic renal failure, postoperative bowel ischemia, cardiac and cerebrovascular complications, and SCI were independently correlated with 30-day/hospital mortality. Survival was 88% and 78% at 1 and 3 years, respectively. The authors concluded that F/B-EVAR is associated with satisfactory midterm outcomes, but a variety of risk factors should be considered in FB-EVAR procedures both pre- and postoperatively to reduce complications and improve survival.

The CME article this month is by Rahman and co-authors, titled "Claudicating patients with peripheral artery disease have meaningful improvement in walking speed after supervised exercise therapy."<sup>3</sup> This study examined the minimal clinically important difference in walking speed in claudicating patients with peripheral artery disease (PAD) after supervised exercise. The ability to walk one block and the ability to climb one flight of stairs questions were chosen as anchor questions. Sixty-three patients with PAD-related claudication had self-selected walking speed and stair climbing measured before and after supervised exercise therapy. Claudicating patients who increase walking speed by 0.04 m/sec or greater and those who climb stairs in 0.03 m/sec or greater are more likely to experience a meaningful improvement in walking impairment than those who do not. This study can serve as a benchmark for clinicians to develop goals and interpret progress in the care of claudicating patients with PAD.

The final article, by Kim and contributors, is "Outcomes of bypass and endovascular interventions for advanced femoropopliteal disease in patients with premature peripheral artery disease."<sup>4</sup> This study compared outcomes in premature PAD patients who had undergone femoropopliteal bypass or endovascular revascularization, using the Vascular Quality Initiative vascular intervention files. Of 2538 patients, 902 underwent isolated femoropopliteal endovascular intervention and 1636 underwent femoropopliteal bypass. After propensity score matching, 466 patients in each group had no significant differences in the baseline characteristics. Perioperative morbidity was higher with femoropopliteal bypass compared with endovascular intervention (12.0% vs 7.9%); however, the rates of major amputation and mortality were not different. At 1 year, patients who had undergone femoropopliteal bypass were less likely to require reintervention (17.0% vs 25.2%); however, no differences were found in major amputation or mortality. In addition, femoropopliteal bypass with saphenous vein and isolated femoropopliteal endovascular interventions were similar. The authors concluded that in patients with premature PAD and advanced femoropopliteal disease, bypass surgery decreased the reintervention rate at 1 year but was associated with increased perioperative morbidity and hospital

length of stay compared with endovascular therapy, and no differences were found in major amputation or mortality between the two strategies.

Thank you for watching! For more information, please follow us on social media and remember to like, comment, and share! We hope you enjoy these four highlighted papers and the other excellent papers in this month's *Journal of Vascular Surgery*. Remember that these articles are free to read until the end of February.

*The video accompanying this article may be found online at [www.jvascsurg.org](http://www.jvascsurg.org).*

## REFERENCES

1. Cui C, Ramakrishnan G, Murphy J, Malas MB. Cost-effectiveness of transcatheter aortic valve replacement versus aortic valve surgery. *J Vasc Surg* 2021;74:910-8.
2. Gallitto E, Faggioli G, Melissano G, Fargion A, Isernia G, Lenti M, et al. Preoperative and postoperative predictors of clinical outcome of fenestrated and branched endovascular repair for complex abdominal and thoracoabdominal aortic aneurysms in an Italian multicenter registry. *J Vasc Surg* 2021;74:1795-806.
3. Rahman H, Pipinos II, Johanning JM, Casale G, Williams MA, Thompson JR, et al. Claudicating patients with peripheral artery disease have meaningful improvement in walking speed after supervised exercise therapy. *J Vasc Surg* 2021;74:1987-95.
4. Kim TI, Zhang Y, Cardella JA, Guzman R, Ochoa Chara CI. Outcomes of bypass and endovascular interventions for advanced femoropopliteal disease in patients with premature peripheral artery disease. *J Vasc Surg* 2021;74:1968-77.