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Use of Telemedicine and Virtual Consultations for Patient Care in the Coronavirus Disease 2019 Era and Beyond for Vascular Surgery Practice: A Systematic Review and Meta-analysis

Arshia Javidan,1,2 Janhavi Patel,3 Sushmitha Pallapothu,4 Faysal Najj5. 1Division of Vascular Surgery, Department of Surgery, University of Toronto, Toronto, ON, Canada; 2Institute of Health Policy Management, and Evaluation, University of Toronto, Toronto, ON, Canada; 3Michael G DeGroote School of Medicine, McMaster University, Hamilton, ON, Canada; 4Faculty of Health Sciences, McMaster University, Hamilton, ON, Canada; 5Department of Vascular Surgery, McMaster University, Hamilton, ON, Canada

Objective: The objective of the present study was to conduct a systematic review and meta-analysis of all studies that had evaluated virtual consultations for patient care in vascular surgery practice.

Methods: Embase, Medline, CINAHL, and Cochrane Central Register of Controlled Trials were searched from inception to October 2021. All primary studies that had evaluated virtual consultations in vascular surgery practice and reported any quantitative outcomes were included. Screening and data extraction were conducted in duplicate. Pooled estimates were calculated via random-effects meta-analysis. A P value of 0.05 was statistically significant. A narrative synthesis was conducted if a meta-analysis was not possible.

Results: Overall, 22 studies of 20,014 patients were included (Fig 1). Three randomized controlled trials evaluating diabetic foot care were included in a meta-analysis. No differences were found in ulcer healing (odds ratio [OR], 0.96; 95% confidence interval [CI], 0.67-1.38; P = .82; Fig 2), amputation (OR, 0.61; 95% CI, 0.36-1.05; P = .08), or mortality (OR, 2.50; 95% CI, 0.28-19.07; P = .44). In the narrative synthesis, no statistically significant differences were found in postoperative readmission rates (four studies), postoperative surgical site infection (one study), or compliance rates for lifestyle changes and smoking cessation (two studies). Among seven studies evaluating patient satisfaction, the patients had generally reported that telemedicine was either comparable or better than in-person visits. Three studies noted that 5% to 11% of patients had been switched from virtual to in-person visits because of worsening of symptoms. However, no comparison was performed between symptom worsening for patients in the in-person care group.

Conclusions: In general, clinical, process, and patient satisfaction outcomes with virtual consultations were comparable to the care received in-person. Telemedicine has the potential to augment vascular surgery practice and reduce resource use for patients and providers alike. Additional high-quality evidence comparing telemedicine and in-person clinical encounters is required to further elucidate the effect that telemedicine and virtual consultations have on clinical outcomes.

Fig. 1. PRISMA (preferred reporting items for systematic reviews and meta-analyses) diagram from initial literature search to final number of studies included in narrative synthesis and meta-analysis.
Open and Endovascular Repair for Splenic Artery Aneurysm: 20-year Experience at Toronto General Hospital

Sultan Khoja, Cesar Cuen Ojeda, Naomi Eisenberg, Graham Roche-Nagle. Division of Vascular Surgery, Peter Munk Cardiac Centre, University Health Network, Toronto, ON, Canada

Objective: Splenic artery aneurysms (SAAs) are uncommon aneurysms that have been diagnosed with increasing frequency during the past few years. The recently published Society for Vascular Surgery (SVS) clinical practice guidelines on the management of visceral aneurysms revised the previous recommended size threshold for repair of nonruptured true aneurysms from 2 cm to 3 cm and continued to recommend treatment of any SAAs diagnosed in women of childbearing age and any pseudoaneurysms. The purpose of the present study was to evaluate and analyze the data and outcomes of patients who had undergone open and endovascular repair of SAAs at Toronto General Hospital and compare the size threshold for repair with the recently reported SVS guidelines.

Methods: A retrospective medical record review was conducted to identify patients who had undergone open or endovascular repair for SAAs from Jan 2000 to June 2020 at Toronto General Hospital.

Results: A total of 40 patients who had undergone SAA repair were identified. The mean patient age at repair was 52 years. Of the 40 patients, 8 had presented with rupture (20%). Of these eight patients, three had pseudoaneurysms (37.5%) and one patient had experienced rupture during late pregnancy. A total of 44 interventions were performed. The mean size for repair for the non–childbearing age patients with true aneurysms was 3.8 cm. Technical success was achieved in 41 of the 44 interventions (93.18%). No 30-day mortality was reported for any of the cases. Six cases included simultaneous iliac or infragenual revascularization. All cases were technically successful. One intraoperative complication, a remote tibial balloon angioplasty tear, had occurred. The mean follow-up time was 199 days (range: 29-381 days). No surgical site infections developed. All patients were asymptomatic with patent CFAs at the last follow-up. One case of surgical site restenosis developed. One patient had undergone reintervention for a remote stenosis. The average increase in the ankle to toe indexes was 44% and 75% (0.22 and 0.18, respectively). One patient had required readmission for gastrointestinal bleeding. Finally, one patient had died of cardiac-related causes on postoperative day 3.

Conclusions: The patchless profundoplasty technique is feasible and results in an autologous anatomic repair for CFA disease without the need for a vein and allows for direct visualization and tacking sutures results in an autologous anatomic repair for CFA disease without the need for a vein and allows for direct visualization and tacking sutures.

The Impact of Obesity in Peripheral Arterial Disease Patients Undergoing Revascularization: A Systematic Review and Meta-analysis

Joanne G. Abi-Jaoude,1 Ahmed A. Naier,2 Thomas Edwards,3 Heather L. Gill,2 Elie Girsowicz,2 McGill Faculty of Medicine and Health Sciences, Montreal, QC, Canada; 2Division of Vascular Surgery, McGill University, Montreal, QC, Canada; 3University of Ottawa, Ottawa, ON, Canada

Objective: We evaluated the association between obesity and outcomes in patients with peripheral arterial disease (PAD) who had undergone either endovascular or open lower extremity revascularization.

Methods: A systematic review and meta-analysis were performed using data from the following databases: Medline, Embase, CINAHL, Web of Science, and Cochrane Library from inception until November 2021. Studies were included if they had described a PAD cohort treated by open or endovascular lower extremity revascularization. A random effects model was used to determine the association between obesity and lower extremity revascularization. Subgroup analysis was performed by type of intervention and by body mass index (BMI). The outcomes examined included mortality, major adverse cardiovascular events (MACE), major adverse limb events (MALE), and endovascular access site complications. Matched data were extracted and meta-analyzed using a random effects model.

Results: Eight studies with 171,648 patients (44,100 obese and 127,548 nonobese) were included. The obese patients (body mass index ≥30 kg/m²) were more likely to be women and to have diabetes and more cardiovascular comorbidities despite being younger. No association was found between obesity and PAD severity. Obesity was associated with an overall 22% decreased mortality risk after lower extremity revascularization (relative risk [RR], 0.78; 95% confidence interval [CI], 0.71-0.85; P = 0.001). Subgroup analysis by intervention type showed similar findings (endovascular: RR, 0.79; 95% CI, 0.71-0.87; P < 0.001; open: RR, 0.70; 95% CI, 0.51-0.95; P = 0.02; I² = 43%). Obesity was associated with a 14% decreased risk of MACE for open surgery only (RR, 0.86; 95% CI, 0.76-0.98; P = 0.02; I² = 0%). No association was found between obesity and MALE (RR, 1.02; 95% CI, 0.93-1.13, P = 0.6; I² = 31%) or endovascular access site complications (RR, 1.73; 95% CI, 0.68-4.38; P = 0.25; I² = 97%).

Conclusions: Obesity was associated with a reduced mortality risk, regardless of revascularization type, but was only associated with a reduced MACE risk for open revascularization. Obesity was not associated with a significantly different risk of MALE or endovascular access site complications. These results suggest a survival benefit for obese patients undergoing revascularization despite having more cardiovascular comorbidities.