Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

IPC18.

National Impact of COVID-19 on Vascular Surgery Services

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Objectives: COVID-19 resulted in severe disruptions to vascular surgery services across the country. Contributors to this backlog include pandemic-related restrictions in elective procedures, fewer patients presenting for care due to fear of infection, and pandemic-related diversion of health care personnel. If services are to regain normalcy, it is important to quantify the deficit of vascular care accrued during the pandemic. This will facilitate accurate anticipation and efficient planning for the required increase in vascular services in the coming months.

Methods: We reviewed vascular procedures performed at all 170 Veterans Affairs Hospitals nationwide between January 1, 2018 and December 31, 2020. Procedures were divided into six categories based on Current Procedural Terminology codes: amputation, aortic, carotid, dialysis access, endovascular (diagnosis and/or intervention), and lower-extremity revascularization (open bypass and/or endarterectomy). The rates of procedures by category were calculated per month. The monthly case-backlog in each category was calculated starting January 2020 as the difference between procedures performed in 2020 and the average of procedures performed in the 2 prior years. These monthly case-backlogs were summed to calculate cumulative monthly and annual case-backlogs for 2020. The 2020 monthly case numbers were standardized relative to the 2 prior years.

Results: During the study period, a total of 51,749 vascular procedures in the six selected categories were performed at a Veterans Affairs hospital: 18,224 in 2018; 18,253 in 2019; and 15,272 in 2020 (Table). By December 31, 2020, dialysis access procedures had the greatest backlog in cases (898) followed by carotid (574), endovascular (473), lower extremity revascularization (421), amputation (304), and aortic (298) (Table; Fig). The greatest drop in procedure type during the pandemic compared with the prior 2 years was a 75% reduction in aortic procedures in April 2020, followed by a 73% reduction in dialysis access procedures and 71% reduction in carotid procedures in the same month. Amputations were the least affected, with a peak reduction of 33% in October 2020.

Conclusions: COVID-19 has resulted in a decrease in all types of vascular procedures. The reduction varied by procedure type, with dialysis access accruing the greatest backlog, and amputations the least. Vascular surgical backlogs will need to be computed for each health care environment in a similar fashion in order to anticipate service needs. Surgical capacity will need to be correspondingly increased in each setting to address this unmet need of vascular procedures.

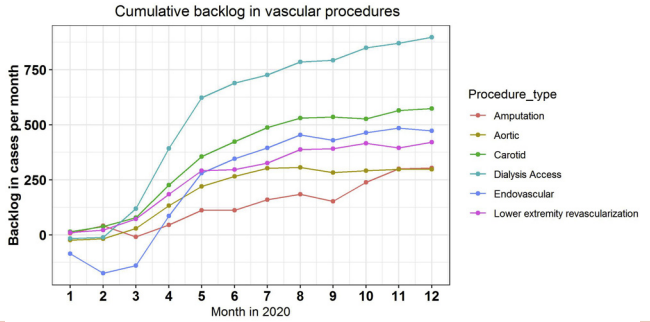

Fig. Cumulative backlog in vascular procedures by category for 12 months in 2020.

Table. Total number of procedures performed from 2018 to 2020 and backlog of cases in 2020 by procedure category

Procedure category	2018 procedures, No.	2019 procedures, No.	2020 procedures, No.	2020 backlog, No.
Amputation	2878	2758	2514	304
Aortic	1740	1648	1396	298
Carotid	2241	2132	1613	574
Dialysis access	4320	4222	3373	898
Endovascular (diagnosis and/or intervention)	4622	5043	4360	473
Lower-extremity revascularization (open)	2423	2450	2016	421

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IPC19.

An Enhanced Recovery After Surgery Protocol Decreases the Use of Post Bypass Narcotics

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Objectives: "Enhanced recovery after surgery" (ERAS) protocols use a multisystem approach to target homeostatic physiology in surgical patients perioperatively and target pain control via opioid-minimizing analgesia. As prescription opioid misuse is the second most commonly used illicit drug in the United States, alternative pain control pathways in the postoperative setting are strongly favored. The aim of this study is to determine if implementing an ERAS protocol for lower extremity bypass surgeries improves pain control and morbidity after surgery.

Methods: Beginning in July 2020, all patients that underwent lower extremity bypass procedures were subject to the ERAS protocol. We compared this group with a "pre-ERAS" group of 114 lower extremity bypass patients treated between June 2016 and July 2020. In addition to previously described ERAS multi-organ system perioperative optimization pathways, all patients were given a cocktail of anti-inflammatory medications before surgery, which included celecoxib, gabapentin, and tylenol. Postoperatively, all patients were given a standing anti-inflammatory regimen of tylenol, gabapentin, and low-potency tramadol with judicious use of high-potency narcotic medications, such as oxycodone and hydromorphone, as needed. Pain scores were recorded using a numerical rating pain scale. Patient-controlled analgesia was not used. Demographics, 30-day complications, and pain control were recorded.

Results: There were 45 patients in the ERAS group, compared with 114 before its implementation. In both groups, the mean age was 68.7 years, and a majority was male. There was no significant difference between groups for demographics, length of stay, rate of surgical site infection, discharge disposition, or readmission rates ($P > .05$). Patients in the ERAS group were less likely to have chronic kidney disease ($P = .04$). Pain control in the first 12 hours was significantly better in the ERAS group ($P = .01$). Pain control at discharge was similar between the two groups ($P = .635$). No patients in the ERAS group used patient-controlled analgesia, compared with 27% in the pre-ERAS group.

Conclusions: Our study utilized a multisystem approach to optimize the physiologic stress response to vascular surgery interventions by improving pain control while reducing high-potency narcotic use. By using scheduled anti-inflammatory medications and minimal high-potency narcotics, we show that postoperative pain control is significantly improved early on, and approaches similar rates by discharge compared with those with more liberalized narcotic medication regimens.

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