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Routine in an Italian High-Volume Vascular Surgery Unit during the COVID-19 Era: How the Pandemic Changed the Vascular Daily Practice



The coronavirus disease 2019 (COVID-19) outbreak has caused a worldwide public health emergency, affecting more than 150 countries¹ and Italy has been most notably impacted. The public health system had to face a completing unexpected challenge necessitating an abrupt restructuring of hospital structures. The Italian Ministry of Health gave the directive to defer every nonurgent surgical intervention, performing selectively urgent and oncological procedures. Guidelines were released for triage of nonemergent surgical procedures based on the Elective Surgery Acuity Scale (ESAS) that considers most arterial vascular procedures as not deferrable.²

Given the prompt progression of COVID-19 pandemic, no data concerning the present attitude of the different vascular surgery units are available. However, the Italian Society of Vascular and Endovascular Surgery suggested through a letter to the members to limit surgical interventions to abdominal aneurysms (AAA) measuring more than 70 mm or showing an increase greater than 1 cm in a year, complicated aortic dissections, cases of visceral/limb ischemia, symptomatic carotid stenosis, and hemorrhagic emergencies (i.e., ruptured aneurysms, dissections, traumas).

We herein describe the decision-making aptitude and patient's management of our high-volume center (>1,000 arterial interventions/year) during the COVID-19 pandemic. According to government directives, our institution limits elective surgery to high-priority surgeries which indication is represented by life-threatening pathologies in a short period (<1 year). Thoracic aneurysms, acute complicated aortic dissections, critical limb ischemia, and ruptured aneurysms treating algorithm were of course not modified by the pandemic, given their characteristics of emergency.

Otherwise, we completely suspended surgical treatments of peripheral artery diseases, asymptomatic carotid stenosis, and varicose vein.

We resettled our therapeutic algorithms considering also that a non-negligible quota of vascular patients may need a variable time in the intensive care unit (ICU) to minimize ICU postoperative admissions and to limited patient's exposure to the coronavirus. Every scheduled patient undergoes a pharyngeal swab at the moment of hospitalization.

A team composed by two vascular surgeons and one anesthesiologist is evaluating every patient to balance the COVID 19 infectious risk and the index vascular disease risk. Vascular surgeon purpose should be to achieve the technical success adopting the least invasive technique, limiting as much as possible operating times, risk of postoperative complication, duration of hospitalization, and outpatient visits.

In our opinion, more than ever, endovascular surgery represents the optimal choice as it allows reducing procedural time, morbidity and short-term mortality rate, and the need for postoperative ICU.

SYMPTOMATIC CAROTID STENOSIS AND PREOCCLUSIVE

We are implementing the number of carotid stenting (CAS) when possible using combined proximal and distal protection devices as it allows a faster in-hospital course than carotid endarterectomy (discharge on first VS third postoperative day). Postoperative follow-up consists in a Doppler ultrasound control at 1 month for CAS, at 1 week for carotid endoarterectomy.

ABDOMINAL AORTIC ANEURYSM

AAA are preferably repaired endovascularly because EVAR generally requires shorter operative time and hospital stay. Before pandemic, patients underwent 30 days Duplex ultrasound and were discharged on the x postoperative day. Currently, a Duplex ultrasound is performed right before discharge on the second postoperative day and it will be repeated once the emergency is over.

Concerning open aortic repair, a postoperative fast track protocol³ has been applied allowing no ICU postoperative stay and a shorter (4 days on average) postoperative hospitalization. One outpatient visit is scheduled on the 10th postoperative day.

COMPLEX AORTIC PROCEDURES

Given the general concern about ICU resources, we prefer local anesthesia approach whenever possible also in complex aortic procedures. However, this approach is not avoided of discomfort, but in our experience, it can be safely adopted after an accurate preoperative planning.

Arch Repair

In detail, Najuta is a fenestrated semicustomized stent graft (Kawasumi Laboratories, Inc, Tokyo, Japan), which is delivered on a through-and-through right brachial-

femoral access, requiring traction only in the first procedural phase that may result painful. Because no cardiac pacing or adjunctive catheterization is necessary, after the release of the graft, the procedure is completed.

Thoracoabdominal Endovascular Repair

Similarly, F-BEVAR can be safely performed under local anesthesia. Because patient's position is not particularly uncomfortable, the only extra challenge for patient is to be so compliant to hold the breath for enough time and not to move during image acquisition, so to allow a precise stent release.

Local anesthesia BEVAR can be difficult because the branches need to be catheterized from an upper access. Our current strategy is to stage the procedure: during the first step, the aortic components are released, and a week after, the target vessels through the dedicated branches are catheterized.

In conclusion, the pandemic strongly affected the vascular field also; in Italy, vascular surgeons were required to modify their daily practice and to respond to the emergency redistributing resources: we strongly

believe that sharing experiences will be fundamental to better manage our patients in these trivial weeks.

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