



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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Journal Pre-proof

The Need of Research Initiatives Amidst and After the Covid-19 Pandemic: A Message from the Editors of the *European Journal of Vascular and Endovascular Surgery*

Martin Björck, Jonathan R. Boyle, Florian Dick

PII: S1078-5884(20)30324-5

DOI: <https://doi.org/10.1016/j.ejvs.2020.04.002>

Reference: YEJVS 7499

To appear in: *European Journal of Vascular & Endovascular Surgery*

Received Date: 2 April 2020

Accepted Date: 3 April 2020

Please cite this article as: Björck M, Boyle JR, Dick F, The Need of Research Initiatives Amidst and After the Covid-19 Pandemic: A Message from the Editors of the *European Journal of Vascular and Endovascular Surgery*, *European Journal of Vascular & Endovascular Surgery*, <https://doi.org/10.1016/j.ejvs.2020.04.002>.

This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

© 2020 Published by Elsevier B.V. on behalf of European Society for Vascular Surgery.



EDITORIAL

The Need of Research Initiatives Amidst and After the Covid-19 Pandemic: A**Message from the Editors of the *European Journal of Vascular and Endovascular Surgery***

We write this editorial while many are facing the greatest turmoil within healthcare since the Second World War. Covid-19 impacts our patients, ourselves, and our profession in many different ways. For instance, never before have the advantages of minimally invasive possibilities been more obvious. Even major aortic surgery can be performed without a need for intensive care in many cases. Between 1999 and 2013, the proportion of patients who needed less than 48 hours of intensive care after abdominal aortic aneurysm (AAA) repair decreased from 41% to 7%, whereas the use of endovascular aortic repair (EVAR) increased from 7% to 78%.¹ EVAR is also established as the first line of treatment for most patients in the updated European Society for Vascular Surgery 2019 AAA Guidelines.²

Currently, vascular surgeons are overwhelmed by the manifold of clinical challenges posed by the severe acute respiratory syndrome coronavirus 2 (Sars-cov-2). Managing patients who are sick with Corona virus disease 2019 (Covid-19) is a significant challenge. The management of vascular patients with threats to both life and limb, when resources are limited, while protecting them from Sars-cov-2, has become a new clinical routine for many of our colleagues. Furthermore, personal protection, while working in the clinical environment, has become a high priority. Data suggest that healthcare professionals treating patients with Covid-19 are at a higher risk of developing a more severe infection, and high death tolls among doctors and nurses have been reported from China and Italy. Whereas the exact risks associated with operating on infected patients are still unknown, many surgical societies are issuing preliminary behavioural guidelines recommending full personal protective equipment for all operations (e.g., the UK Intercollegiate General Surgery Guidance on COVID-19).

The importance of research, and of the unique research opportunities that this situation presents, must not be overlooked amid these challenges. The consequences of the Covid-19 pandemic will affect vascular surgery worldwide for a long time period, and probably longer than expected now. Many of the postponed elective and semi-acute operations will have to be performed later on, in a secondary overwhelming wave of challenges. Paradoxically, a high death toll among the oldest in our populations may somewhat reduce the need of vascular surgery, and counteract this effect.

There are many unanswered questions, such as: What impact do different stages of Covid-19 have on surgical outcomes? Does type of surgery and anaesthesia affect these outcomes, both in the short and long term? What is the risk for surgeons, nurses, assistants, and anaesthesiologists? What protective measures are effective? What collateral damage (in terms of missed treatment opportunities and options for other patients) does Covid-19 bring, and how can this best be confronted? Scientists must design appropriate studies *now* to be able to answer such questions *later*. After all, this will not be the last pandemic affecting the human population and our specialty. According to epidemiologists minor pandemics tend to occur every 20 years, and major ones every 100 years.

The easiest, fastest, and probably most effective way to ensure that we will be able to answer these and other questions in the future is to use the already established quality improvement registries, for instance the Vascunet and International Consortium of Vascular Registries collaborations.³ To add the simple pre-operative variable, identifying if the patient is Sars-cov-2 positive or not (or if status is unknown), would already allow later analyses of how the outcome was affected after adjustments for potential confounding.⁴ It would also be interesting to add this variable at the postoperative follow up visit, to register if the patient was infected by Sars-cov-2 virus during hospitalisation or afterwards.

The great number of patients who may have their procedures postponed as a result of Covid-19 mandates an analysis of the consequences of such delay. Most of the previous “natural history” studies stem from the early or middle 20th century, or are based on small cohorts of patients with severe comorbidities. For instance, we know the (low) risk of rupture among patients with small AAAs with a diameter of 40 – 54 mm thanks only to the historical work of previous generations of vascular surgeons.⁵ But there are novel data from the UK AAA screening programme suggesting that contemporary risk of rupture may be even lower,⁶ and we know very little about the rupture risk above the diameter of 54 mm. Is this observed lower risk explained by changes in medication or smoking habits? The RESCAN study showed that the risk of rupture was twice as high among active smokers,⁷ but can smoking cessation or medication decrease the risk of rupture while awaiting postponed surgery? The current pandemic offers unique scientific opportunities to address these questions.

Similarly, what is the risk of deterioration and amputation in different subgroups of patients with chronic limb threatening ischaemia (CLTI)? We know that most patients benefit from an expedited management, but maybe there are subgroups of patients who can be managed less urgently, maybe even without invasive treatment? The global vascular guidelines on the management of CLTI have established the possibly underestimated importance of infection.⁸ Hopefully, the vascular registries have adapted their variables to the WIfI and GLASS classifications, as now may be the time to establish an up to date database to inform future treatment prioritisation.

The Covid-19 pandemic presents vascular surgeons with the opportunity to study many fundamental issues facing our specialty. While we did not ask for this turmoil, even the most devastating cyclone has a windless eye. One major drawback of the vascular registries in this particular situation is the fact that most of them only register patients who were operated on. Multicentre international collaborations, merging complete datasets from multiple institutions who

could start to collect data on patients whose operations were postponed, could help us to answer these outstanding issues.

It is easy to identify the negative aspects of globalisation, when the Covid-19 epidemic spread so quickly. We must remember, however, that the Chinese characterisation of the virus RNA sequence, and the German development of the first polymerase chain reaction diagnostic tool, also spread globally, and much faster. The global scientific community has stood up to the highest standards. Unfortunately, the same cannot be said for the organisation of healthcare. Many hospitals and countries struggle with shortages of drugs, ventilators, and personal protective equipment, putting both patients and staff at risk. Given the regular frequency with which infective epidemics have haunted humanity throughout history, the verdict on those responsible may be harsh.

The EJVES is an important player in the vascular scientific community, and we are committed to play our part in this difficult situation. We would like to highlight our fast track publication possibilities to enable fast, yet scientifically sound, communication when indicated. For instance, we recently published an important paper about the paclitaxel debate fast track.⁹ The paper was submitted on 15 November, and despite two major revisions and three review rounds it was accepted for publication on 18 December, and was e-published on 8 January. Another fast track option are Research Letters, introduced early this year. Many important scientific observations can be published in a short version (Research Letters allow a maximum of 800 words, one image or small table, and up to five references). Such short communications can be easily handled and fast tracked when an urgent communication is warranted in the interest of our patients.

Take care of your patients, your staff, your families, but also of yourselves in this difficult situation. The secret of winning a war is – in the middle of the fight – to prepare for the next battle. The outcome will depend on how much we are willing to learn from the current challenges.

REFERENCES

1. Gavali H, Mani K, Tegler G, Kawati R, Covaciu L, Wanhainen A. Editor's Choice – Prolonged ICU length of stay after AAA repair: Analysis of time trends and long term outcome. *Eur J Vasc Endovasc Surg* 2017;**54**:157–63.
2. Wanhainen A, Verzini F, Van Herzelee I, Allaire E, Bown M, Cohnert T, *et al.* European Society for Vascular Surgery (ESVS) 2019 clinical practice guidelines on the management of abdominal aorto-iliac artery aneurysms. *Eur J Vasc Endovasc Surg* 2019;**57**:8–93
3. Behrendt CA, Venermo M, Cronenwett JL, Sedrakyan A, Beck AW, Eldrup-Jorgensen J, *et al.* VASCUNET, VQI, and the International Consortium of Vascular Registries – Unique collaborations for quality improvement in vascular surgery. *Eur J Vasc Endovasc Surg* 2019;**58**:792–3.
4. Mani K, Björck M. Alternatives to randomised controlled trials for the poor, the impatient and when evaluating emerging technologies. *Eur J Vasc Endovasc Surg* 2019;**57**:598–9.
5. United Kingdom Small Aneurysm Trial Participants, Powell JT, Brady AR, Brown LC, Fowkes FG, Greenhalgh RM, *et al.* Long-term outcomes of immediate repair compared with surveillance of small abdominal aortic aneurysms. *N Engl J Med* 2002;**346**:1445–52.
6. Oliver-Williams C, Sweeting MJ, Jacomelli J, Summers L, Stevenson A, Lees T, *et al.* Safety of men with small and medium abdominal aortic aneurysms under surveillance in the NAAASP. *Circulation* 2019;**139**:1371–80.
7. Sweeting MJ, Thompson SG, Brown LC, Powell JT; RESCAN collaborators. Meta-analysis of individual patient data to examine factors affecting growth and rupture of small abdominal aortic aneurysms. *Br J Surg* 2012;**99**:655–65.
8. Conte MS, Bradbury AW, Kolh P, White JV, Dick F, Fitridge R, *et al.* Global vascular guidelines on the management of chronic limb-threatening ischemia. Joint guidelines of the Society for

Vascular Surgery; European Society for Vascular Surgery; World Federation of Vascular Societies. *Eur J Vasc Endovasc Surg* 2019;**58**:S1–S109.

9. Behrendt CA, Sedrakyan A, Peters F, Kreutzburg T, Schermerhorn M, Bertges DJ, *et al.* Long term survival after femoropopliteal artery revascularisation with paclitaxel coated devices: A propensity score matched cohort analysis. *Eur J Vasc Endovasc Surg* 2020;**[IN THIS ISSUE to be published in the April issue]**

Martin Björck ^{a,*}, Jonathan R. Boyle ^b, Florian Dick ^c

^a Department of Surgical Sciences, Section of Vascular Surgery, Uppsala University, Uppsala, Sweden

^b Cambridge Vascular Unit, Cambridge University Hospitals NHS Trust, Hills Road, Cambridge, UK

^c Department of Vascular Surgery, Kantonsspital St Gallen, and University of Bern, Bern, Switzerland

* **Corresponding author.** Department of Surgical Sciences, Vascular Surgery, Uppsala University, SE 75185 Uppsala, Sweden.

E-mail address: martin.bjorck@surgsci.uu.se (Martin Björck).