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## EDITORIAL: HOT TOPIC

## The Need of Research Initiatives Amidst and After the Covid-19 Pandemic: A Message from the Editors of the *EJVES*

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%.<sup>1</sup> EVAR is also established as the first line of treatment for most patients in the updated European Society for Vascular Surgery 2019 AAA Guidelines.<sup>2</sup>

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 consequence.

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.<sup>3</sup> 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.<sup>4</sup> 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.<sup>5</sup> But there are novel data from the UK AAA screening programme suggesting that contemporary risk of rupture may be even lower,<sup>6</sup> 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,<sup>7</sup> but can smoking cessation or medication decrease the risk of rupture while awaiting postponed surgery? The current pandemic offers unique scientific opportunities to address such 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.<sup>8</sup> Hopefully, the vascular registries have adapted their variables to the Wifl 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.<sup>9</sup> 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.

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