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INVITED COMMENTARY

Should We Urgently Modify the Management of SARS-CoV-2 Infected Patients Suffering from Acute Limb Ischaemia?

Anne Lejay ^{a,b,*}, Nabil Chakfé ^{a,b}^a Department of Vascular Surgery and Kidney Transplantation, University Hospital of Strasbourg, France^b Groupe Européen de Recherche sur les Prothèses Appliquées à la Chirurgie Vasculaire, France

In their paper, Behrendt *et al.*¹ explored whether there was an association between the COVID-19 pandemic and in hospital mortality in patients admitted with a vascular emergency. The data were drawn from health insurance claims using ICD-10 and OPS codes. The authors concluded that confirmed SARS-CoV-2 infection was associated with increased mortality in patients with stroke, transient ischaemic attack, and acute limb ischaemia (ALI).¹ These results are of importance since this study contributes to the search for optimal vascular disease management during the current pandemic.

One of the strengths of this paper is that the authors could compare outcomes between infected and non-infected patients in a very large unselected population.¹ The authors therefore showed that mortality rates were different among infected and non-infected patients, but interestingly this difference was greater when patients were hospitalised for ALI than for stroke: mortality was 14.3% vs. 5% in infected and non-infected patients hospitalised for ALI, while mortality was 12.4% vs. 9.0% in infected and non-infected patients hospitalised for stroke. These results support the concept that infection with the SARS-CoV2 virus may lead to pro-inflammatory and hypercoagulable state that may result in varying types of ischaemic events, especially ALI. The pro-inflammatory state might be caused not only by inflammatory cytokines inducing a pro-thrombotic state, but SARS-CoV-2 might directly infect endothelial cells through the angiotensin converting enzyme 2 receptor of the alveoli, which leads to both endothelial cell activation and dysfunction.² Accordingly, ALI in SARS-CoV-2 infected patients presents a novel challenge to practitioners.

The COVID-19 pandemic has in fact drastically altered the medical landscape and has forced practitioners to modify their current clinical practice.³ The medical and surgical communities had to learn how to manage in hospital

patient flows and to select the situations that need to be prioritised depending on the hospital capability and equipment. Today's practice is therefore complex and multifaceted but guidelines the practitioner can refer to, as well as multidisciplinary team practice where all stakeholders are actively engaged, will help improve outcomes.⁴ In the current pandemic, the need for individualisation and good clinical judgement still remain, but the basis of all decisions must still be evidence based, and applied in the best interest of the patient.⁴

Despite possible selection bias, the study from Behrendt *et al.* therefore raises awareness concerning the management of SARS-CoV-2 infected patients presenting with ALI. As the pandemic continues to spread and cases rise worldwide, such studies may better inform surgeons as well as other treating providers so they may gain a deeper understanding of the effects of SARS-CoV-2 and better counsel and treat the patients entrusted to their care. Coordinated efforts are needed to further understand the underlying pathogenesis and to provide optimal treatment strategies.⁵

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* Corresponding author. Department of Vascular Surgery and Kidney Transplantation, University Hospital of Strasbourg, 1 place de l'hôpital, 67091 Strasbourg Cedex, France.

E-mail address: anne.lejay@chru-strasbourg.fr (Anne Lejay).

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