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REFERENCES

1. Arentz M, Yim E, Klaff L, Lokhandwala S, Riedo FX, Chong M, et al. Characteristics and outcomes of 21 critically ill patients with COVID-19 in Washington State. *JAMA* 2020;323:1612-4.
2. Bhatraju PK, Chassemieh BJ, Nichols M, Kim R, Jerome KR, Nalla AK, et al. Covid-19 in critically ill patients in the seattle region - case series. *N Engl J Med* 2020;382:2012-22.
3. Kornbau C, Lee K, Hughes G, Firstenberg M. Central line complications. *Int J Crit Illn Inj Sci* 2015;5:170.
4. Al Raiy B, Fakih MG, Bryan-Nomides N, Hopfner D, Riegel E, Nenninger T, et al. Peripherally inserted central venous catheters in the acute care setting: a safe alternative to high-risk short-term central venous catheters. *Am J Infect Control* 2010;38:149-53.

<https://doi.org/10.1016/j.jvs.2020.06.052>

Moving forward: Ensuring quality research in vascular surgery during COVID-19



In their article, Valdivia and Chaudhuri discuss the impact of deaths from the coronavirus disease 2019 (COVID-19) on the outcomes of trials and registries, importantly highlighting the negative impact on the accuracy of databases and calling for improved guidelines surrounding mortality reporting.¹ COVID-19 is a double-edged sword: whereas it has brought new research questions in times of uncertainty, it has equally complicated traditional academic pursuits. Although trials and registries should be considered in a case-by-case manner, timely interventions are needed to protect participants' safety first and foremost. Studies, where possible, should consider halting or delaying the recruitment of new patients, establishing on-site precaution measures, and maximizing follow-ups by telemedicine.^{2,3} Revision of statistical analyses, data interpretation,

and protocols is unavoidable as, similar to patient safety, integrity in research should remain prioritized.

This pandemic can, however, also become an opportunity to revisit how clinical research is conducted. Learning from current challenges in accounting for heightened mortality due to COVID-19, trials and registries need to be structured for unexpected events that would significantly influence the number of participants or their outcomes. Future pandemics and global crises are bound to occur, and devising prespecified protocols for patient follow-up, data storage, and human resource management will be crucial in ensuring the consistency of clinical research when resources are redirected toward emergency response.^{3,4} Furthermore, there is potential for a larger role for citizen-driven science and self-reported outcomes in advancing pandemic-related research and beyond, reducing the burden on clinical providers and scientists while still ensuring the advancement of our field.

One silver lining of the pandemic for research will be the vast body of literature that is being generated on disease-specific outcomes affected by COVID-19.⁵ New international collaboratives like the Vascular Surgery COVID-19 Collaborative (VASCC) and the COvid-19 Vascular sERvice (COVER) are actively collecting information on the consequences of surgery delays and COVID-19 infections in vascular patients.^{6,7} Only through cooperation, transparency, and solidarity between researchers will we be able to bounce back from the darkness of the COVID-19 era and build resiliency into surgical research to navigate future crises.

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REFERENCES

1. Valdivia AR, Chaudhuri A. A need for consensus on mortality reporting related to the COVID-19 pandemic in ongoing and future vascular registries and trials. *J Vasc Surg* 2020 Jun 24. [Online ahead of print].
2. Fleming TR, Labriola D, Wittes J. Conducting clinical research during the COVID-19 pandemic: protecting scientific integrity. *JAMA* 2020 May 28. [Online ahead of print].
3. Lunt H, Heenan H. Mitigating the impact of disasters and emergencies on clinical trials site conduct: a site perspective

- following major and minor unforeseen events. *Contemp Clin Trials Commun* 2019;16:100487.
- Padala PR, Jendro AM, Padala KP. Conducting clinical research during the COVID-19 pandemic: investigator and participant perspectives. *JMIR Public Health Surveill* 2020;6:e18887.
 - COVIDSurg Collaborative. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study [published correction appears in *Lancet* 2020 Jun 9]. *Lancet* 2020;396:27-38.
 - Mouawad NJ, Cuff RF, Hultgren R, Chuen J, Galeazzi E, Wohlauer M. The Vascular Surgery COVID-19 Collaborative (VASCC). *J Vasc Surg* 2020;72:379-80.
 - Benson RA; Vascular and Endovascular Research Network (VERN) Collaborators. The COvid-19 Vascular sERvice (COVER) study: an international Vascular and Endovascular Research Network (VERN) collaborative study assessing the provision, practice, and outcomes of vascular surgery during the COVID-19 pandemic. *Eur J Vasc Endovasc Surg* 2020;60:156-7.

<https://doi.org/10.1016/j.jvs.2020.07.048>

Management of cognitive dysfunction in patients with asymptomatic carotid stenosis with best medical treatment versus carotid endarterectomy



A recent study showed that $\geq 50\%$ asymptomatic carotid artery stenosis (ACAS) is associated with impairments in mobility and cognitive function and a greater fall risk in older adults.¹ These results extend the findings of an earlier study from the same group showing that approximately 50% of adults with $\geq 50\%$ ACAS develop cognitive impairment, probably because of decreased cerebral perfusion (not atheroembolism).²

The optimal management of ACAS is the subject of extensive debates. Some authors support that best medical treatment (BMT) alone is adequate for stroke prevention for all patients with ACAS.³ According to this theory, no asymptomatic patient should be offered a prophylactic carotid endarterectomy (CEA).³ In contrast, others support that BMT alone may not be adequate for all patients with ACAS and that certain high-risk patient subgroups should be considered for a prophylactic CEA.⁴

The two recent studies^{1,2} suggest that besides reducing the risk of future stroke, another parameter that should be considered when debating on the optimal management of patients with ACAS is cognitive dysfunction. There is evidence that by correcting the carotid stenosis, CEA increases cerebral perfusion and improves cognitive function.⁵ In contrast, because BMT does not correct the stenosis, it has no effect on the ACAS-associated cognitive dysfunction. The ability of CEA to prevent or to reverse the ACAS-associated cognitive dysfunction developing in the elderly is a considerable advantage of surgery over BMT and carries important psychosocial

consequences. In patients with advanced ACAS and impaired cognitive function, it may be reasonable to consider prophylactic CEA over BMT, not only for the prevention of future stroke but also for the improvement of cognitive function.

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REFERENCES

- Gray VL, Goldberg AP, Rogers MW, Anthony L, Terrin ML, Guralnik JM, et al. Asymptomatic carotid stenosis is associated with mobility and cognitive dysfunction and heightens falls in older adults. *J Vasc Surg* 2020;71:1930-7.
- Lal BK, Dux MC, Sikdar S, Goldstein C, Khan AA, Yokemick J, et al. Asymptomatic carotid stenosis is associated with cognitive impairment. *J Vasc Surg* 2017;66:1083-92.
- Abbott AL, Brunser AM, Giannoukas A, Harbaugh RE, Kleinig T, Lattanzi S, et al. Misconceptions regarding the adequacy of best medical intervention alone for asymptomatic carotid stenosis. *J Vasc Surg* 2020;71:257-69.
- Paraskevas KI, Veith FJ, Ricco JB. Best medical treatment alone may not be adequate for all patients with asymptomatic carotid artery stenosis. *J Vasc Surg* 2018;68:572-5.
- Kougias P, Collins R, Pastorek N, Sharath S, Barshes NR, McCulloch K, et al. Comparison of domain-specific cognitive function after carotid endarterectomy and stenting. *J Vasc Surg* 2015;62:355-61.

<https://doi.org/10.1016/j.jvs.2020.01.079>

Reply



We would like to thank Dr Paraskevas for his comments on our report, "Asymptomatic carotid stenosis is associated with mobility and cognitive dysfunction and heightens falls in older adults."¹ These results extend our earlier findings of cognitive decline observed in asymptomatic carotid artery stenosis that we found were associated with attendant altered blood flow and cerebral hypoperfusion.² We agree that although intensive medical management in these patients reduces the risk for atheroembolic stroke, it might not necessarily target the mechanisms that contribute to declines in mobility and cognitive function. We also agree that plaque removal in these patients could ameliorate both of these mechanisms and could potentially attenuate the declines in mobility and cognition. We are approaching the therapeutic question cautiously. Before defining the best treatment, it is essential to thoroughly investigate all potential mechanisms that may be operative as a result of the atherosclerotic plaque. There are other biologic processes associated with the plaque that