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.

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Letter to the editor

The cardiovascular burden of congenital heart disease - not only in times of COVID-19

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Thank you for the article of Tan and Aboulhosn who address cardiovascular burden of patients with congenital heart defects (CHD) in the context of COVID-19 [1]. However, we argue to expand our outlook on cardiovascular burden beyond the connection with COVID-19 to better understand the general peculiarities of the vessels in CHD – which is what we currently do not do well enough [2].

In terms of cardiovascular abnormalities, there is still a great need for clarification of how genetic factors regulate blood pressure and endothelial function. Furthermore, the extent to which surgical factors like surgical scars, conduits, patches and early inflammatory processes due to cardiopulmonary bypass and oxidative stress - which come along with surgery - play a role in cardiovascular outcomes needs to be determined [3]. More than that, lifelong medication which fosters the hardening of the arterial vessels, or environmental factors, such as reduced physical activity patterns, might also play a role in not only a limited immune defense of COVID-19 specifically but the prevention of secondary diseases in general.

Interdisciplinary work is needed to solve the puzzle of why the arteries of individual patients or patient groups are harder, the vessel walls thicker, the function of endothelium impaired [4]. While in contrast the risk for a cardiovascular event within the next ten years, estimated with a general risk scores, is low [5], we need to start understanding how these patients age in more detail and how they can benefit from lifelong primary prevention of cardiovascular diseases.

References

[1] W. Tan, J. Aboulhosn, The cardiovascular burden of coronavirus disease 2019 (COVID-19) with a focus on congenital heart disease, Int. J. Cardiol. 309 (2020) 70–77.
[2] U.M.M. Bauer, M.A. Korten, G.P. Diller, P. Helm, H. Baumgartner, P. Ewert, et al., Cardiovascular risk factors in adults with congenital heart defects - recognised but not treated? An analysis of the German National Register for Congenital Heart Defects, Int. J. Cardiol. 277 (2018) 79–84.
[3] T. Murakami, S. Tateno, Y. Kawasoe, K. Niwa, Aortic surgery is one of the risk factors for enhancement of pressure wave reflection in adult patients with congenital heart disease, Int. J. Cardiol. 175 (2014) 451–454.
[4] A.L. Häcker, B. Reiner, R. Oberhoffer, A. Hager, P. Ewert, J. Müller, Increased arterial stiffness in children with congenital heart disease, Eur. J. Prev. Cardiol. 25 (2018) 103–109.
[5] A.L. Häcker, R. Oberhoffer, A. Hager, P. Ewert, J. Müller, Age-related cardiovascular risk in adult patients with congenital heart disease, Int. J. Cardiol. 277 (2019) 90–96.

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