



Editorial

Out-of-hospital cardiac arrest in adults with congenital heart disease: More questions than answers?



Oktay Tutarel *

Department of Paediatric Cardiology and Congenital Heart Disease, German Heart Centre Munich, Technical University of Munich, Munich, Germany

ARTICLE INFO

Article history:

Received 13 December 2018

Accepted 18 December 2018

Available online 20 December 2018

Due to the great advances in pediatric cardiology and cardiac surgery the mortality of patients with congenital heart disease (CHD) has decreased significantly over the last decades [1]. Accordingly, the number of adults with congenital heart disease (ACHD) is increasing. Unfortunately, ACHD patients are often burdened with significant morbidity and mortality. Sudden cardiac death (SCD) is one of the most common causes of death in ACHD patients [1]. While arrhythmias are often the underlying mechanism, other possible causes of SCD like aortic dissection should not be overlooked. There is only limited data regarding the outcome of the acute management of SCD, i.e. cardiopulmonary resuscitation, in ACHD patients. This holds especially true for information regarding the outcome of out-of-hospital cardiac arrest (OHCA). Even in large registries of young adults with OHCA and a confirmed cardiac cause, congenital heart disease was causative in less than 7% of patients [2]. A retrospective single-center study from Belgium reported the outcome of 38 patients with a CHD and cardiopulmonary resuscitation [3]. Out of these, 21 experienced an OHCA. The complexity of the CHD, pulmonary hypertension, and time to return of spontaneous circulation were related to worse outcome [3]. In the current issue, Vehmeijer and colleagues combined the data of two large Dutch registries, one for ACHD patients, and one for OHCA, to further elucidate this topic [4]. The advantage of this approach is the collection of population-wide data, enabling the inclusion of a larger number of patients. Furthermore, a selection bias towards patients with a more complex CHD, which is often encountered if only patients from tertiary centers are included, is less pronounced. One of the main results by Vehmeijer and colleagues is that simple CHD were the most prevalent CHD in ACHD patients with OHCA [4]. One explanation for this finding could be that contrary to the general

assumption even patients with simple CHD have a high risk for sudden cardiac death. This would necessitate a closer monitoring of this patient group. Another explanation could be that the CHD is only a bystander and not really the cause for the OHCA. Unfortunately, the cause of OHCA was unknown in a number of patients. To obtain more robust data regarding this topic a larger sample size is needed. Vehmeijer and colleagues could identify only 64 patients for the current analysis - despite their registry-based approach [4]. Furthermore, part of their data was based on a questionnaire sent to the patients' general practitioners. It is therefore reasonable to assume that some data might be missing. Studies with larger sample sizes are absolutely needed. This task could probably be achieved by combining several national registries.

In the meantime, we must remind ourselves, that even surviving patients are still at risk, since these patients have a worse outcome even after discharge when compared to matched controls, indicating the need for better risk assessment and for stringent follow-up of these patients [3].

Vehmeijer and colleagues deserve praise for providing us with more inside into the important topic of OHCA in ACHD patients.

Conflict of interest

The author reports no relationships that could be construed as a conflict of interest.

References

- [1] C.C. Engelings, P.C. Helm, H. Abdul-Khaliq, B. Asfour, U.M. Bauer, H. Baumgartner, et al., Cause of death in adults with congenital heart disease - an analysis of the German National Register for Congenital Heart Defects, *Int. J. Cardiol.* 211 (2016) 31–36.
- [2] C. Deasy, J.E. Bray, K. Smith, L.R. Harriss, S.A. Bernard, P. Cameron, Out-of-hospital cardiac arrests in young adults in Melbourne, Australia-adding coronal data to a cardiac arrest registry, *Resuscitation* 82 (2011) 1302–1306.
- [3] T. Van Puyvelde, K. Ameloot, M. Roggen, E. Troost, M. Gewillig, W. Budts, et al., Outcome after cardiopulmonary resuscitation in patients with congenital heart disease, *Eur. Heart J. Acute Cardiovasc. Care* 7 (2018) 459–466.
- [4] J.T. Vehmeijer, M. Hulleman, J.M. Kuijpers, M.T. Blom, H.L. Tan, B.J.M. Mulder, et al., Resuscitation for out-of-hospital cardiac arrest in adults with congenital heart disease, *Int. J. Cardiol.* 278 (2019) 77–82.

DOI of original article: <https://doi.org/10.1016/j.ijcard.2018.10.096>.

* Department of Paediatric Cardiology and Congenital Heart Disease, German Heart Centre Munich, Lazarettstr. 36, 80636 Munich, Germany.

E-mail address: otutarel@hotmail.com.