

Post-cardiac arrest syndrome

Sudden cardiac arrest (SCA) is one of the leading causes of mortality and morbidity in the United States, and survivors are frequently left with severe disability. Of the 10% successfully resuscitated from SCA, only around 10% of these live with a favorable neurologic outcome. Survivors of SCA commonly develop **post-cardiac arrest syndrome** (PCAS). PCAS is composed of neurologic, myocardial, and systemic injury related to inadequate perfusion and ischemia-reperfusion injury with free radical formation and an inflammatory cascade. While **targeted temperature management** is the cornerstone of therapy, other **intensive care unit**-based management strategies include **monitoring** and treatment of **seizures**, **cerebral edema**, and increased **intracranial pressure**, as well as prevention of further neurologic injury¹.

2: Murasaki M, Tanizaki S, Nakanishi T, Toma Y, Hayashi M, Kono K, Ishida H, Maeda S, Nagai H, Azuma H, Kano KI. Absence of calvarial fracture could predict the need for tracheostomy in traumatic brain injury. *Acute Med Surg*. 2021 Mar 30;8(1):e640. doi: 10.1002/ams2.640. PMID: 33815810; PMCID: PMC8009138.

3: Zhou SE, Barden MM, Gilmore EJ, Pontes-Neto OM, Sampaio Silva G, Kurtz P, Oliveira-Filho J, Cougo-Pinto PT, Zampieri FG, Napoli NJ, Theriot JJ, Greer DM, Maciel CB. Postcardiac Arrest Neuroprognostication Practices: A Survey of Brazilian Physicians. *Crit Care Explor*. 2021 Jan 11;3(1):e0321. doi: 10.1097/CCE.0000000000000321. PMID: 33458688; PMCID: PMC7803669.

4: Marquez AM, Morgan RW, Ko T, Landis WP, Hefti MM, Mavroudis CD, McManus MJ, Karlsson M, Starr J, Roberts AL, Lin Y, Nadkarni V, Licht DJ, Berg RA, Sutton RM, Kilbaugh TJ. Oxygen Exposure During Cardiopulmonary Resuscitation Is Associated With Cerebral Oxidative Injury in a Randomized, Blinded, Controlled, Preclinical Trial. *J Am Heart Assoc*. 2020 May 5;9(9):e015032. doi: 10.1161/JAHA.119.015032. Epub 2020 Apr 23. Erratum in: *J Am Heart Assoc*. 2020 Jun 16;9(12):e014549. PMID: 32321350; PMCID: PMC7428577.

5: Lachance B, Wang Z, Badjatia N, Jia X. Somatosensory Evoked Potentials and Neuroprognostication After Cardiac Arrest. *Neurocrit Care*. 2020 Jun;32(3):847-857. doi: 10.1007/s12028-019-00903-4. PMID: 31907802; PMCID: PMC7275887.

6: Shin H, Kim JG, Kim W, Lim TH, Jang BH, Cho Y, Choi KS, Ahn C, Lee J, Na MK. Procalcitonin as a prognostic marker for outcomes in post-cardiac arrest patients: A systematic review and meta-analysis. *Resuscitation*. 2019 May;138:160-167. doi: 10.1016/j.resuscitation.2019.02.041. Epub 2019 Mar 11. PMID: 30872069.

7: Pekkarinen PT, Bäcklund M, Efendijev I, Raj R, Folger D, Litonius E, Laitio R, Bendel S, Hoppu S, Ala-Kokko T, Reinikainen M, Skrifvars MB. Association of extracerebral organ failure with 1-year survival and healthcare-associated costs after cardiac arrest: an observational database study. *Crit Care*. 2019 Feb 28;23(1):67. doi: 10.1186/s13054-019-2359-z. PMID: 30819234; PMCID: PMC6396453.

8: Mulder M, Geocadin RG. Neurology of cardiopulmonary resuscitation. *Handb Clin Neurol*. 2017;141:593-617. doi: 10.1016/B978-0-444-63599-0.00032-6. PMID: 28190437.

9: Ilik F, Kemal Ilik M, Cöven I. Levatiracetam for the management of Lance- Adams syndrome. *Iran J Child Neurol*. 2014 Spring;8(2):57-9. PMID: 24949053; PMCID: PMC4058067.

10: Bos JM, Bos KM, Johnson JN, Moir C, Ackerman MJ. Left cardiac sympathetic denervation in long QT syndrome: analysis of therapeutic nonresponders. *Circ Arrhythm Electrophysiol*. 2013 Aug;6(4):705-11. doi: 10.1161/CIRCEP.113.000102. Epub 2013 May 31. PMID: 23728945.

11: Miyata K, Mikami T, Asai Y, Iihoshi S, Mikuni N, Narimatsu E. Subarachnoid hemorrhage after resuscitation from out-of-hospital cardiac arrest. *J Stroke Cerebrovasc Dis*. 2014 Mar;23(3):446-52. doi: 10.1016/j.jstrokecerebrovasdis.2013.03.024. Epub 2013 May 13. PMID: 23680684.

12: Cruvinel MG, Carneiro FS, Bessa RC Jr, Pereira e Silva Y, Marques MB. Tako- Tsubo syndrome secondary to residual neuromuscular blockade. Case report. *Rev Bras Anesthesiol*. 2008 Nov-Dec;58(6):623-30. English, Portuguese. doi: 10.1590/s0034-70942008000600007. PMID: 19082409.

13: Schwartz PJ, Priori SG, Cerrone M, Spazzolini C, Odero A, Napolitano C, Bloise R, De Ferrari GM, Klersy C, Moss AJ, Zareba W, Robinson JL, Hall WJ, Brink PA, Toivonen L, Epstein AE, Li C, Hu D. Left cardiac sympathetic denervation in the management of high-risk patients affected by the long-QT syndrome. *Circulation*. 2004 Apr 20;109(15):1826-33. doi: 10.1161/01.CIR.0000125523.14403.1E. Epub 2004 Mar 29. PMID: 15051644.

1)

Mayasi Y, Geocadin RG. Updates on the Management of Neurologic Complications of Post-Cardiac Arrest [Resuscitation](#). *Semin Neurol*. 2021 Aug;41(4):388-397. doi: 10.1055/s-0041-1731310. Epub 2021 Aug 19. PMID: 34412143.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=post-cardiac_arrest_syndrome

Last update: **2024/06/07 02:55**

