

Cardiac arrest

see [Sudden cardiac arrest](#).

Risk Factors

Do not use [Succinylcholine](#) for routine [intubations](#) in [adolescents](#) and [children](#) (may cause [cardiac arrest](#) even in apparently healthy youngsters, many of whom have undiagnosed myopathies). Linked to [malignant hyperthermia](#).

[Deep-vein thrombosis](#) is of concern primarily because of the potential for material (clot, platelet clumps...) to dislodge and form emboli (including pulmonary emboli (PE)) which may cause a pulmonary infarction, [sudden death](#) (from [cardiac arrest](#)), or [cerebral infarction](#) (from a paradoxical embolus, which may occur in the presence of a [patent foramen ovale](#)).

[Bulbar-cervical dissociation](#)

Cardiac arrest and convulsions may accompany [glossopharyngeal neuralgia](#)

Complications

[organ failure](#): [uremia](#), [hypoxemia](#), [hepatic encephalopathy](#), [Reye's syndrome](#), [anoxic encephalopathy](#) (e.g. post-[resuscitation](#) from [cardiac arrest](#)).

[Hypoxic coma](#).

[Cardiac arrest](#) at onset was found to complicate roughly 3% of [spontaneous subarachnoid hemorrhage](#) cases and was associated with extremely high [mortality](#). Despite this, survival can still be expected in approximately 18% of patients ¹⁾.

Treatment

The first line of treatment is usually [cardiopulmonary resuscitation](#) (CPR), during which another person compresses the chest to increase blood flow to the organs. CPR can temporarily treat cardiac arrest until more advanced emergency treatment is available to the person experiencing cardiac arrest.

International practice guidelines currently recommend [epinephrine](#), [amiodarone](#) and [lidocaine](#)/lignocaine

Research

Large [animal models](#) have been described to investigate new treatments during [cardiac arrest](#) and post-resuscitation phase, but a detailed model that includes extensive [neuromonitoring](#) is lacking.

Before an electrically-induced 10-minute CA and resuscitation, 46 adults [pigs](#) underwent neurosurgery for placement of a multifunctional probe ([intracranial pressure](#) or ICP, [tissue oxygen tension](#) or PbtO₂ and cerebral temperature) and a bolt-based technique for the placement and securing of a regional blood flow probe and two sEEG electrodes; two modified cerebral [microdialysis](#) (CMD) probes were also inserted in the [frontal lobes](#) and accidental misplacement was prevented using perforated head support.

42 animals underwent the CA procedure and 41 achieved the return of spontaneous circulation (ROSC). In 4 cases (8.6%) an adverse event took place during preparation, but only in two cases (4.3%), this was related to the neurosurgery. In 6 animals (13.3%) the minor complications that occurred resolved after probe repositioning.

They provided a detailed comprehensive neuromonitoring approach in a large animal model of CA that might help future research ²⁾.

¹⁾

Feldstein E, Dominguez JF, Kaur G, Patel SD, Dicipinigaitis AJ, Semaan R, Fuentes LE, Ogulnick J, Ng C, Rawanduzy C, Kamal H, Pisapia J, Hanft S, Amuluru K, Naidu SS, Cooper HA, Prabhakaran K, Mayer SA, Gandhi CD, Al-Mufti F. Cardiac arrest in spontaneous subarachnoid hemorrhage and associated outcomes. *Neurosurg Focus*. 2022 Mar;52(3):E6. doi: 10.3171/2021.12.FOCUS21650. PMID: 35231896.

²⁾

Annoni F, Peluso L, Hirai LA, Babini G, Khaldi A, Herpain A, Pitisci L, Ferlini L, Garcia B, Taccone FS, Creteur J, Su F. A comprehensive [neuromonitoring](#) approach in a large [animal model](#) of [cardiac arrest](#). *Animal Model Exp Med*. 2022 Feb;5(1):56-60. doi: 10.1002/ame2.12200. Epub 2022 Jan 28. PMID: 35229991.

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