Hyperoxemia

The increased oxygen content of the blood.

Targeting hyperoxemia is common practice in neurocritical care settings, but the safety of hyperoxemia has been questioned.

Reported outcomes from the available studies have indicated that hyperoxemia is associated with worse neurological outcomes, mortality, and delayed cerebral ischemia. These findings provide a general guideline toward avoiding hyperoxemia in the acute setting of aneurysmal subarachnoid hemorrhage. Further studies are needed to determine the optimal ventilation and oxygenation parameters for the acute management of this patient population. [1].

Humaloja et al., found no association between early post-arrest hyperoxemia and unfavourable outcome. Subgroup analysis found no differential effect depending on arrest location, initial rhythm or time-to-return of spontaneous circulation (ROSC) [2].

Early moderate hyperoxemia may not increase or decrease the risk of a poor outcome in mechanically ventilated aneurysmal SAH patients [3].

1)
Ahn J, Mastorakos P, Sokolowski JD, Chen CJ, Kellogg R, Park MS. Effects of hyperoxemia on aneurysmal subarachnoid hemorrhage outcomes: a systematic review and meta-analysis. Neurosurg Focus. 2022 Mar;52(3):E7. doi: 10.3171/2021.12.FOCUS21660. PMID: 35231897.
2)
Humaloja J, Litonius E, Efendijev I, Folger D, Raj R, Pekkarinen PT, Skrifvars MB. Early hyperoxemia is not associated with cardiac arrest outcome. Resuscitation. 2019 Apr 27. pii: S0300-9572(19)30151-0. doi: 10.1016/j.resuscitation.2019.04.035. [Epub ahead of print] PubMed PMID: 31039393.
3)
Lång M, Raj R, Skrifvars MB, Koivisto T, Lehto H, Kivisaari R, von Und Zu Fraunberg M, Reinikainen M, Bendel S. Early Moderate Hyperoxemia Does Not Predict Outcome After Aneurysmal Subarachnoid Hemorrhage. Neurosurgery. 2015 Nov 9. [Epub ahead of print] PubMed PMID: 26562823.