

Hypoxic-ischemic encephalopathy and the modern ways of the treatment: Where we are and How long the way?

Leonid Pankratov

Children's Hospital#1, Saint Petersburg, Russia

Abstract

Perinatal asphyxia (PA) is one of the main contributors to neonatal morbidity,

Long-term neurological disability and early neonatal mortality. It accounts for ~ 900 000 deaths worldwide for every year. Severe asphyxia results in hypoxic-ischemic encephalopathy (HIE) and multi-organ failure such as cardiac, hepatic and renal dysfunctions.

The management of infants with HIE is supportive and includes resuscitation techniques. Effective resuscitation at birth can prevent a large proportion of neonatal deaths. Meta-analyses show that resuscitation with room air after newborn asphyxia in term neonates gives lower mortality than resuscitation with 100% O₂.

The pathophysiology of PA is closely associated with the inflammation. Interleukins -1 β ,6,8,10 and tumor necrosis factor (TNF)- α have involved in an inflammatory response. They activate polymorphonuclear leukocytes and monocytes/macrophages and may release reactive oxygen species, toxic granules including proteolytic enzymes, myeloperoxidase and injuring cells. Moreover, oxidative stress arises from the strong cellular oxidizing potential of excess reactive oxygen species (ROS).

A considerable variety of neuroprotective strategies studied in the experimental models and clinical trials. Therapeutic hypothermia (cooling) appears to be safe and effective due to reducing cellular metabolism, apoptotic cell death and suppression of the inflammatory cascade. The intervention starts up to the first 6 h after birth will improve survival rate, and reduce neuro disability.

Nevertheless, some of the newborns have suffered from severe neurological sequelae as cerebral palsy (CP) and additional neuroprotective treatment at birth is necessary. The main focus of the presentation will make on the antioxidant and anti-inflammatory capabilities of noble gases and other medications after severe PA.

Biography

Leonid P. has obtained the diploma of Doctor of Medicine in 1995 in Leningrad Pediatric Medical Institution, St.Petersburg, Russia. He was subspecialized in Anesthesiology and Neonatology and completed the Doctor of Philosophy at Saint Petersburg Pediatric Medical Academy in 2010. He is the Consultant Neonatologist on the Department of Neonatal Intensive Care (64 beds) at the Children's Hospital#1, St.Petersburg, Russia. Leonid P. is a Ph.D. student at the Department of Pediatric Research, National Hospital, University of Oslo, Norway. He has performed the experimental study of the treatment of hypoxia on the model of a pig and had 6 publications in the reputed international journals. Leonid P. presented the results of his studies on the Congress of the European Academy of Pediatric Societies (Geneva) and Congresses of joint European Neonatal Societies (Maastricht, Budapest). He is the editor of the journal Russian Neonatal Society.



[International Conference on Pediatrics and Neonatal Care | July14, 2020](#)

Citation: Dr. Leonid Pankratov, Hypoxic-ischemic encephalopathy and the modern ways of the treatment: Where we are and How long the way? , Neonatal care 2020, International Conference on Pediatrics and Neonatal Care, July14 | 2020, Webinar, 1