



Perspective

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A Case of Infections in a Premature Infant and Repeated Apnea

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Introduction

Premature infants have difficulty regulating their body temperature, learning to feed themselves, and maintaining adequate respiratory control in their first few days of life. For many premature infants, the resolution of apnea and the restoration of a regular breathing pattern is a crucial developmental milestone. While AOP is a developmental condition, the reasons for immature newborns' proclivity for apnea remain unknown. Although the cause of AOP is unknown, immature pulmonary reflexes and respiratory responses to hypoxia and hypercapnia are thought to play a role in its development and severity.

Pathogenesis

Fetal to Neonatal Transition

After birth, the foetus transitions from an oxygen-depleted environment with PaO₂ of 23–27 mmHg to an oxygen-rich environment with PaO₂ fourfold higher. When newborns are exposed to 100% oxygen during postnatal resuscitation, the postnatal rise in PaO₂ effectively silences peripheral chemoreceptors, resulting in a delayed commencement of spontaneous breathing. Given fewer synaptic connections and inadequate myelination of the young brainstem, preterm newborns' immature respiratory rhythm and chemoreceptor function may postpone this postnatal transition.

Ventilatory Response to Hypercapnia

Premature newborns increase ventilation in response to hypercapnia by prolonged expiration time but not breath frequency or overall tidal volume, resulting in lower minute ventilation than term newborns. Premature infants with apnea had a worse hypercapnic ventilatory response than those without apnea, resulting in blocked inspiratory attempts and extended apneic occurrences [1].

Ventilatory responses to laryngeal

In premature newborns, activation of the laryngeal mucosa can cause apnea, bradycardia, and hypotension. While this is thought to be a protective reflex, an over-reaction can lead to AOP. The laryngeal chemoreflex is a reflex that causes apnea and is mediated by superior laryngeal nerve afferent.

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Neurotransmitters and Apnea

The vast majority of arachnoid cysts do not need medication. When it's determined that an arachnoid cyst is causing or is most likely causing symptoms, there are a variety of surgical options [2]. The surgical method is often determined by the cyst's location and the presence (or lack thereof) of surrounding neurological structures. When the lesion is easily amendable, surgical excision of the wall is done with the formation of contact with the subarachnoid space.

Factors Involved in Apnea

While a premature infant's respiratory control is the major cause of apnea, several other variables can exacerbate or worsen apnea. Apnea is a typical symptom of infection, both local and systemic. A variety of central nervous system illnesses, such as cerebral haemorrhage, hypoxic-ischemic encephalopathy, and seizures, can cause apnea. A role for thermoregulation in apnea is also possible. A glucose or electrolyte imbalance, as well as the existence of a patent ductus arteriosus with a big shunt, have all been linked to apnea in premature newborns. Apnea in babies can be caused by a variety of drugs, including opioid analgesics and magnesium sulphate. Because of the reduced oxygen-carrying capacity of red blood cells, anaemia is linked to apnea.

Diagnosis

Apnea in preterm babies can be an indication of viral, metabolic, thermoregulatory, respiratory, cardiac, or CNS dysfunction, though it is often attributed to immature respiratory control mechanisms. Before adopting prematurity as the cause of apnea, a thorough history, physical examination, and, if necessary, testing should be performed. Visual observation or the use of impedance-type cardiorespiratory monitors used constantly during the assessment and ongoing care of preterm newborns are commonly utilised to diagnose apnea.

Conclusion

The importance of cMRI in the early detection of epilepsy with structural abnormalities cannot be overstated. The very accurate categorization of these images is vital for the right diagnosis and therapy of these epilepsy patients due to the range of causes and presentations.

References

1. Abu-Shaweesh JM (2007) Activation of central adenosine A2A receptors enhances superior laryngeal nerve stimulation-induced apnea in piglets via a GABAergic pathway. J Appl Physiol 103(4):1205–1211.
2. Adén U (2011) Methylxanthines during pregnancy and early postnatal life. Handb Exp Pharmacol, 200:373–389.

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