

Link between mild infection and hypoxic apnoea

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Apnoea and sudden infant death syndrome (SIDS) represent major medical concerns in the neonatal population, and infection may play a crucial role in their pathogenesis. Scientists at Swedish medical university Karolinska Institutet have now exposed a mechanism for how mild infection can cause apnoea and death due to hypoxia in neonates.

Their results, which are published in the scientific journal PNAS, are largely based on mouse studies, although a small-scale clinical study on new-born babies in neonatal care was also conducted.

Researchers at the Department of Woman and Child Health have established that an enzyme (mPGES-1) in the blood-brain barrier is activated on infection, stimulating in turn the secretion of the prostaglandin E2, a signal substance, near the respiratory centres of the brain stem. If the body is temporarily hypoxic, it is this brainstem area that induces compensatory gasping. In the event temporary suffocation, therefore, an inhibition of the nerve cells in the respiratory centre, via PGE2, in vulnerable individuals could lead to a diminished respiratory response, hypoxia and, at worst, death.

“It is possible that these findings may explain the association between mild infection, inflammation and Cot-death syndrome”, says Dr Eric Herlenius, the leader of the study.

“Understanding how infection can affect respiration will enable us to introduce new improved methods for the monitoring, diagnosis and treatment of new-born babies”.

The research team will now be conducting a larger-scale clinical study in association with Karolinska University Hospital.

Source: Karolinska Institutet

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