




Health

Sudden infant death syndrome may have a biological cause

The condition may at least partly be caused by insufficient binding of a neurotransmitter to receptors in the brainstem

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Researchers may have identified a biological mechanism behind sudden infant death syndrome (SIDS). A better understanding of the condition's causes could help scientists to develop a test that predicts a baby's SIDS risk.

SIDS occurs when an apparently healthy infant dies unexpectedly, usually during the first six months of their life while they are asleep. Why it occurs is unknown, but is thought to include a combination of factors, such as a baby's development and their environmental exposures, such as to cigarette [smoking](#).

To learn more, [Robin Haynes](#) at Boston Children's Hospital, Massachusetts, and her colleagues analysed the brainstems of 70 deceased infants, of whom 58 died of SIDS and 12 died of other causes. Among the babies who died of SIDS, the researchers identified differences in how the neurotransmitter serotonin bound to their so-called 5-HT_{2A/C} receptors, found in the lower brainstem.

In rodents, these receptors have been linked to protective functions during [sleep](#), such as the ability to respond to low oxygen levels by gasping or waking up.

Among the babies who died of SIDS, there was reduced serotonin binding to the 5-HT_{2A/C} receptors or the binding didn't increase as expected as the infants got older, compared with the babies who died of non-SIDS causes, says Haynes.

These differences may combine with other biological and environmental factors, such as an infant's sleeping position, to increase their risk of SIDS, say the researchers.

Better understanding the various mechanisms that can lead to SIDS, such as potential [genetic](#) abnormalities, could one day help scientists develop a test that predicts an infant's risk, says Haynes. In the meantime, parents should adhere to sleep-safe protocols, such as laying infants on their backs and keeping blankets away from their heads, say the researchers.

“I think one of the things that’s become clear is that, unlike other things, SIDS is not due to one abnormality in one physiological system, but is an interaction,” says [Thomas Keens](#) at Children’s Hospital Los Angeles.

The fact that the study found that some of the babies who died from SIDS didn’t have increased serotonin binding as they aged could explain why these deaths often occur between 2 and 4 months of age, he says, as this is when infants undergo rapid changes in their breathing control.

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