

Babies exposed to COVID in the womb show neurodevelopmental changes

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Babies born to mothers who suffered COVID-19 disease during pregnancy seem to exhibit differences in neurodevelopmental outcomes at 6 weeks, according to a preliminary analysis presented in the 30th

European Congress of Psychiatry.

Project Leader Dr. Rosa Ayesa Arriola said: "Not all babies born to [mothers](#) infected with COVID show neurodevelopmental differences, but our data shows that their risk is increased in comparison to those not exposed to COVID in the womb. We need a bigger study to confirm the exact extent of the difference."

Researchers found that babies born to mothers who had been infected show greater difficulties in relaxing and adapting their bodies when they are being held, when compared to infants from non-infected mothers, especially when infection took place in late pregnancy. Moreover, infants born from infected mothers tend to show greater difficulty in controlling head and shoulder movement. These alterations suggest a possible COVID-19 effect on motor function (movement control).

The results come from an initial evaluation of the Spanish COGESTCOV-19 project, which followed the course of pregnancy and baby development in mothers infected with COVID-19. The researchers are presenting the data on pregnancy and post-natal assessment at 6 weeks after birth, but the project will continue to see if there are longer-term effects. The group will monitor infant language and motor development between 18 and 42 months old.

The initial evaluation compared babies born to 21 COVID positive pregnant women and their babies, with 21 healthy controls attending the Marqués de Valdecilla University Hospital in Santander, Spain. The mothers underwent a series of tests during and after pregnancy. These included hormonal and other biochemical tests (measuring such things as cortisol levels, immunological response, etc.) salivary tests, movement responses, and psychological questionnaires. All analyses were adjusted for infant age, sex, and other factors.

The post-natal tests included the Neonatal Behavioral Assessment Scale (NBAS), which measures the baby's movement and behavior.

Researcher Ms. Águeda Castro Quintas (University of Barcelona, Network Centre for Biomedical Research in Mental Health), said: "We found that certain elements of the NBAS measurement were changed in 6-week-old infants who had been exposed to the SARS-COV-2 virus. Effectively they react slightly differently to being held, or cuddled.

"We have been especially sensitive in how we have conducted these tests. Each mother and baby was closely examined by clinicians with expert training in the field and in the tests.

"We need to note that these are preliminary result, but this is part of a project following a larger sample of 100 mothers and their babies. They have also been monitored during pregnancy, and after birth. We also plan to compare these mothers and babies with data from another similar project (the epi-project) which looks at the effect of stress and genetics on a child's neurodevelopment. This is an ongoing project, and we are at an early stage. We found that babies whose mothers had been exposed to COVID did show neurological effects at six weeks, but we don't know if these effects will result in any longer-term issues, longer term observation may help us understand this. "

Co-researcher Nerea San Martín González said: "Of course, in [babies](#) who are so young there are several things we just can't measure, such as language skills or cognition. We also need to be aware that this is a comparatively small sample, so we are repeating the work, and we will follow this up over a longer period. We need a bigger sample to determine the role of infection on offspring's neurodevelopmental alterations and the contribution of other environmental factors In the meantime, we need to stress the importance of medical monitoring to facilitate a healthy pregnancy, discussing any concerns with your doctor

wherever necessary."

Project leader Dr. Rosa Ayesa Arriola said: "This is the right moment to establish international collaborations that would permit us to assess long-term neurodevelopment in children born during the COVID-19 pandemic. Research in this field is vital in understanding and preventing possible neurological problems and [mental health](#) vulnerabilities in those children in the coming years."

In an independent comment, Dr. Livio Provenzi (University of Pavia, Italy), who was not involved with this work, said: "There is a great need to study both direct and indirect effects of the COVID-19 pandemic on the health and well-being of parents and infants. Pregnancy is a period of life which shapes much of our subsequent development, and exposure to adversity in pregnancy can leave long-lasting biological footprints. These findings from Dr. Rosa Ayesa Arriola's group reinforces evidence of epigenetic alterations in in infants born from mothers exposed to pandemic-related stress during [pregnancy](#). It shows we need more large scale, international research to allow us to understand the developmental effects of this health emergency, and to deliver better quality of care to parents and infants."

Provided by European Psychiatric Association

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