



## European Congress of Psychiatry – Press Release

### *Babies exposed to COVID in the womb show neurodevelopmental changes*

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Type of research: not peer reviewed/observational study/people

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 30<sup>th</sup> 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".*

Águeda Castro Quintas continued:

*"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 6 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, added:

*"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".*

Commenting, 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) 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".*

Dr Provenzi was not involved in this work.

Note: The epi-project is a multicentre project involving Hospital Clínic of Barcelona and Hospital Universitario Central de Asturias. It looks at the effects of genetics and stress on baby outcome. It is led by Prof. Dr. Lourdes Fañanás.

**ENDS**

**Notes for Editors**



The 30<sup>th</sup> European Congress of Psychiatry is organised by the European Psychiatric Association, the largest association of psychiatrists in Europe. It will take place virtually from 4-7 June. For more information see: <https://epa-congress.org/>

#### Conference ABSTRACT

#### **The Impact of Maternal SARS-COV-2 Infection in Early Stages of Newborn Neurodevelopment: Preliminary Results in a Multicenter Spanish Study**

Authors: Á. Castro Quintas<sup>1,2</sup>, N. San Martín<sup>3</sup>, I. de las Cuevas<sup>4</sup>, E. Eixarch<sup>5</sup>, M. Daura-Corral<sup>3</sup>, M. Lopez<sup>5</sup>, L. de la Fuente Tomas<sup>6</sup>, M.P. Garcia-Portilla<sup>1</sup>, L. Fañanas<sup>1,2</sup>, R. Ayesa-Arriola<sup>1,7</sup>; <sup>1</sup>Centre for Biomedical Research Network on Mental Health (CIBERSAM), Instituto de Salud Carlos III, Madrid, Spain, <sup>2</sup>University of Barcelona, Evolutionary Biology, Ecology and Environmental Sciences, Barcelona, Spain, <sup>3</sup>University of Barcelona, Department of Evolutionary Biology, Ecology and Environmental Sciences, Barcelona, Spain, <sup>4</sup>University Hospital Marques de Valdecilla, Neonatology, Santander, Spain, <sup>5</sup>Maternitat Hospital Clinic Barcelona, BCNatal Fetal Medicine Research Center, Barcelona, Spain, <sup>6</sup>University of Oviedo, Department of Psychiatry, Oviedo, Spain, <sup>7</sup>Valdecilla Biomedical Research Institute, Psychiatry, Santander, Spain

**Introduction:** The consequences for the COVID-19 pandemic in the newborns of affected mothers remains unknown. Previous clinical experiences with other infections during pregnancy lead to considered pregnant women and their offspring especially vulnerable for SARS-COV-2. That is, the underlying physiopathological changes caused by the infection (e.g. storm of cytokines, micro-coagulation in placenta or vertical transmission) could clearly compromise fetal neurodevelopment.

**Objectives:** To analyze the impact of maternal SARS-COV-2 infection during pregnancy in early neurodevelopment of infants gestated during the COVID-19 pandemic period compared to those gestated immediately prior (2017-2021).

**Methods:** 212 pregnant women (14% infected) were followed throughout their pregnancy and postpartum, including newborn development. SARS-COV-2 infection was serologically confirmed during pregnancy. The Brazelton Neonatal Assessment Scale (NBAS) was administered at 6 weeks old by a trained neonatologist to evaluate neurological, social and behavioral aspects of newborn's functioning. Differences in NBAS scores between cases and controls were tested by ANOVAs. All the analysis were adjusted for maternal age, sociodemographic status, anxious-depressive symptomatology, infant's sex and gestational age at birth and NBAS, and for the period of gestation (previous or during COVID-19 pandemic).

**Results:** NBAS social interactive dimension was significantly decreased in those infants exposed to prenatal SARS-COV-2 ( $F=4.248$ ,  $p=.043$ ), particularly when the infection occurred before the week 20 of gestation. Gestation during COVID-19 pandemic did not alter NBAS subscales.

**Conclusions:** SARS-COV-2 infection during pregnancy seems to be associated with lower NBAS scores on social dimension in 6 weeks old exposed newborns.

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