Study finds evidence of vertical transmission of coronavirus across the placenta

Modes of COVID-19 transmission

- Transmission through droplets and contact with contaminated surfaces seem to be the major routes of novel coronavirus spread.
- The World Health Organization recently acknowledged that “short-range aerosol transmission” of the virus “cannot be ruled out” in specific indoor locations which are crowded, inadequately ventilated and where exposure to the infected person is over a prolonged period of time.
- Now, a study has found evidence that confirms vertical transmission of SARS-CoV-2 virus from the mother to the foetus.
- The route of infection is through the womb (in utero) well before the onset of labour and delivery of the baby.

Transplacental transmission (a probable route):

- These studies could not confirm the transmission route because samples of placenta, amniotic fluid and blood of the mother and the newborn were not collected and tested in every mother–infant pair.
- For instance, in a study published recently in the journal CMAJ (Canadian Medical Association Journal), only the placenta and nasopharyngeal swab samples of the mother were tested for the virus.
- Though nasopharyngeal swab samples of the newborn collected on the day of birth and on two other days, plasma and stool samples tested positive for the virus, the researchers did not collect and test the cord blood.
- Hence the researchers classified it a “probable” case of congenital route of vertical transmission.

Strong evidence

- In contrast, the results published recently in Nature Communications involving one mother–newborn pair provide strong evidence of “confirmed” vertical transmission of the SARS-CoV-2 virus through the “transplacental” route.

About transpacental transmission:

- The virus first occurs in the mother’s blood and later causes placental infection and inflammation.
- The virus then gets into the blood of the neonate following placental infection.
- The neonate also showed clinical manifestation of COVID-19 in terms of
neurological signs and symptoms.

- To check for vertical transmission, the researchers first collected clear amniotic fluid prior to rupture of membranes. The amniotic fluid tested positive for two genes of the virus.
- The baby was delivered through caesarean section to avoid infection during normal childbirth; caesarean delivery is routinely done in the case of HIV positive mothers to cut the risk of vertical transmission.