Article

# Antibodies in Infants Born to Mothers with COVID-19 Pneumonia

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Citations (931) References (4)

Citations (931) References (4)

... Zeng et al. [72] CS Nasopharyngeal swab (-) No Alive Alive No Wang et al. [85] CS Nasopharyngeal swab (-) ...

... [25] Moreover, this transmission is rare in these rare cases due to the high concentration of immunoglobulin (Ig) M and IgG; it has been considered for SARS-CoV-2. [69, 72] While IgG can be transferred from mother to fetus during pregnancy, IgM is too large to pass through the placenta. Therefore, the circulation of SARS-CoV-2 IgM in newborns may partially justify the vertical transmission of the virus. ...

... Therefore, the circulation of SARS-CoV-2 IgM in newborns may partially justify the vertical transmission of the virus. [69, 72] The mechanisms of viral invasion of the placenta are not yet clearly defined, but a series of cellular studies have shown that co-expression of ACE2 and TMPRSS2 does not occur in the placenta at the same time, so it seems likely that SARS-CoV-2 through an alternative mechanism to enter placental tissues, [73,74] which requires further studies. In general, comprehensive information about the process of childbirth and transmission of the disease to the baby is shown in Table 2, which is a complete summary of this study. ...

**COVID-19's Effect in Pregnancy and Vertical Transmission: A Systematic Review**

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Aug 2024 · Int J Prev Med

Fatemeh Abbasi · Minoo Movahedi · Leila Mousavi Seresht · Somayeh Khanjani

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... IU/L) [8]. It is known IgG can cross the placenta barrier from the mother to the fetus beginning at the end of the second trimester and reaches high levels at the time of birth [16]. This would not confirm the infection in utero. ...

... As we know, IgM is not usually transferred from the mother to the fetus because of its larger macromolecular structure. Further evidence of vertical transmission was provided by Zeng et al. [16]. In their retrospective review there were 6 infants who had antibodies in their serum, but the RT-PCR test results were all negative in the throat swabs and blood. ...

... The PCR test on newborns were of low diagnostic value. Many publications report

that all the tested newborns were negative [16, 17,18] for SARS-CoV-2 or only single cases were positive [4,5,6,7,15,19]. In 3 out of the 4 described cases, the authors drew attention to the characteristic features that could be observed in the histopathological examination of fetal and/or placental tissues. ...

**A case of COVID-19 in pregnancy complicated by fetal pleural effusion**

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Apr 2024

Natalia Filochowska · Łukasz Witek · Helena Sławska · Anita Olejek

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... Варто підкреслити, що наявність IgG у плода є результатом передавання цього імуноглобуліну від матері до плода під час вагітності. Водночас наявність IgM є проявом того, що плід виробляє і секретує цей імуноглобулін у відповідь на вірусну інфекцію, оскільки, на відміну від IgG, IgM не може проникати через плаценту, що обумовлено його більшою молекулярною масою [13]. ...

... Так, ознаки вентрикулодилатації (7,9% проти 2,0% контрольної групи), пієлоектазії (6,4% проти 1,0%) і розширення петель кишечника (11,4% проти 3,0%) були підставою для невідкладного проведення УЗД новонароджених для моніторингу та своєчасного лікування (у т.ч. хірургічного) [6,8, 13]. Особливості фетальної ЕхоКГ у плодів від матерів основної групи: дилатація правих відділів серця плода, потовщення стінок шлуночків за рахунок ендокарда з підвищенням його ехогенності, порушенням серцевого ритму та провідності, наявності гідроперикарда свідчили про вірогідність розвитку міокардиту [12]. ...

**Ultrasound characteristics of perinatal complications in newborns from mothers who…**

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G.F. Medvedenko · Boris Tarasyuk · O.M. Dziuba · Ganna Grebinichenko

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... However, most newborns with infections were only mildly affected during the prenatal phase. [46, 47] This study's findings suggest that there is no association between the severity of COVID-19 in mothers giving birth and SARS-CoV-2 infection in newborns.

These results align with those from a study at a referral hospital in Turkey. ...

... [49,50] This is justified by the inactively generated transplacental transmission of SARS-CoV-2 IgG antibodies from mother to foetus. [46, 49] It's important to recognise that viral infections can be transmitted not only through intrauterine vertical transmission but also during the foetus's passage through the birth canal, after birth, through breastfeeding, skin contact, or exposure to droplets from the mother or others when they cough or sneeze. [48] On the contrary, a study used the viral nucleic acid test to examine the placenta of one infected newborn within the first 12 hours. ...

**Clinical overview and characteristics of neonates from mothers confirmed with COVID…**

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Feb 2025 · JFMPC

Agustina Nurmala Tobing · Siti Maemun · Aninda Dinar Widiantari · Nina Mariana

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... Ninguno de los bebés presentó síntomas. (10) Por último, se sabe, que la lactancia proporciona la forma más completa de nutrición para los recién nacidos, ya que les proporciona anticuerpos que aún no se han desarrollado en los bebés, necesarios para defenderse de infecciones respiratorias en los primeros meses de vida, como puede ser frente a este nuevo coronavirus. La OMS recomienda la lactancia exclusiva en los primeros 6 meses de vida, incluso en el caso de que la madre presente la infección activa. ...

... (5) En general, este virus no se detecta en la leche materna, aunque en alguna ocasión se ha detectado RNA viral en muestras de leche sin que se haya logrado recuperar en cultivo, por lo que se plantea la duda de que esta detección sea de un virus viable, con capacidad infectiva. (8,9, 10) Es criterio de los autores de esta comunicación, que la mayoría de las embarazadas infectadas por SARS-CoV-2, pasaran la enfermedad de forma leve o asintomática. La neumonía en las pacientes embarazadas no parece ser más grave que en el resto de grupos de población. ...

**COVID-19 in pregnant women. Risk of complications during pregnancy and in the…**

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... This observation aligns with previous reports indicating that the neonatal Fc receptor (FcRn)-mediated mechanism can enhance neonatal IgG titers relative to maternal levels [1,2]. In line with previous findings, this supports the hypothesis that IgG transplacental transfer confers passive neonatal immunity even in the absence of maternal symptoms or neonatal infection [10, 11,12,13]. Furthermore, we did not detect statistically significant differences in maternal IgG titers at delivery between previously infected mothers and naïve mothers, suggesting that vaccination alone elicits substantial antibody responses. ...

**BM study: a monocentric prospective observational cohort study on neonatal humo…**

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Jul 2025 · Riv Ital Pediatr Ital J Pediatr

Rosa Perretta · Juan José Borraz Torca · Giuseppina De Luca · Nicola Bertazza Partigiani

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... При этом в феврале 2022 года 75% детей и подростков, заболевших COVID-19, имели серологические признаки предыдущего инфицирования SARS-CoV-2 [6]. Штамм Омикрон реплицируется в основном в верхних дыхательных путях, вызывая чаще всего локальную инфекцию, и реже -поражение нижних отелов органов дыхания, что проявляется более легким течением заболевания, в том числе у детей, невакцинированных лиц и пациентов без ранее существовавшего адаптивного иммунитета [7] [8][9]. Однако в ряде случаев отмечается тяжелое течение: так, среди детей, госпитализированных с COVID-19 в США, от 28 до 40% были помещены в отделение интенсивной терапии (ОИТ), от 6 до 18% нуждались в инвазивной искусственной вентиляции легких, при этом 3% умерли [10]. По мере развития пандемии число инфицированных детей значительно увеличилось, что было связано с улучшением не только тестирования на SARS-CoV-2, но и диагностики COVID-19 на основании расширения знаний о симптомах болезни. ...

**КОРОНАВИРУСНАЯ ИНФЕКЦИЯ И COVID-19 У ДЕТЕЙ. ЧАСТЬ 2. КЛИНИЧЕСКИЕ…**

Article

Mar 2025

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... All the specimens collected, including placental membranes, amniotic fluid, breast milk, venous blood, ascites and vaginal secretions from mothers and oropharyngeal swabs from neonates, were negative for SARS-CoV-2 nucleic acid. Consistent with other studies, only rare case reports were with probable vertical transmission during COVID-19 (Hosier et al., 2020;Kirtsman et al., 2020; Zeng et al., 2020) . On the other hand, the protective effect of vaccination on neonatal test positivity may also play a significant role during Omicron epidemic (Barros et al., 2024). ...

**Impact of Omicron BA.5 infection on maternal and neonatal outcomes**

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Lu Li · Ruitian Hou · Zan Mai · Xiaoping Tang

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... In another study, COVID-19 was detected in the throat culture taken from two COVID-19 suspected newborns in the 24 th hour after delivery (Khan et al., 2020). Similarly, immunoglobulin M (IgM) antibodies of COVID-19 were detected in the blood samples taken from the newborns right after delivery (Dong et al., 2020; Zeng et al., 2020) . These results support the intrauterine transmission of COVID-19. ...

**Evaluation of the Hearing Screening Results of Newborns of Covid-19 Positive Mothers: A…**

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Apr 2025

Yasemin Sökmen · Resmiye Kaya Odabaş · Bahadir Yazicioglu

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... None of the newborns who were tested for both IgG and IgM in our study showed IgM antibodies in their umbilical cord blood, indicating no vertical transmission, which is consistent with most previous studies [2,20,21,26]. Only a few studies have shown detectable and infrequent SARS-CoV-2 IgM antibodies in newborns of SARS-CoV-2 infected mothers [27, 28]. Of women who tested positive during pregnancy, 284 (70.5%) of their newborns had IgG antibodies of ≥10.00 AU/mL, indicating passive immunization. ...

**Maternal-Fetal Outcomes and Antibody Transfer, Depending on the Trimester of SARS…**

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Mar 2025 · INT J MOL SCI

Line Fich · Ann-Marie Hellerung Christiansen · Kathrine Vauvert Römmelmayer Hviid · Henriette Svarre Nielsen

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... Studies report varying antibody prevalence among newborns, irrespective of maternal symptoms, indicating a consistent transfer of antibodies across the placenta. 21, 22 Table 3 exhibits IgA levels in previously infected mothers and their infants. The results display that 87.7% were positive in serum and 86.1% in milk, while it was not detected in the serum of infants (Figure 2). ...

**Estimation of Immunoglobulins in Iraqi SARS-CoV-2-Infected Mothers and Their Infants**

Article Full-text available

Dec 2024 · J Comm Dis

Raghad Harbi Al-azzawi

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... Interestingly, four of six infants who acquired SARS CoV-2 were premature, and five presented with respiratory distress requiring ICU admission. In addition, we also observed passive transfer of maternal antibodies to newborns exposed to maternal SARS-CoV-2 infection during pregnancy as reported in prior studies [52][53][54] [55] [56]. ...

**SARS-CoV-2 Infection and Adverse Maternal and Perinatal Outcomes: Time-to-Event…**

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Michelle Brendolin · Mayumi Wakimoto · Raquel de Vasconcellos Carvalhaes de Oliveira · Patrícia Brasil

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... Currently, we are investigating whether perinatal challenges with the coronavirus spike protein produce similar neurobehavioral consequences during the postpubertal stages of rodents as seen in the above EGF-injection model. This ongoing animal research might hint at the psychiatric consequence of the infants experiencing the vertical transmission of coronaviruses [157, 158]. ...

**Neurobiology of COVID-19-Associated Psychosis/Schizophrenia: Implication of…**

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Hiroyuki Nawa · Masaaki Murakami

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... Additionally, mother-to-child transmission represents a possible pathway for COVID-19. [18,19] Fortunately, the infection rates among children are comparatively low, and the majority of hospitalized children exhibit only moderate symptoms while being sick, resulting in minimal harm to them [20] [21] [22]. ...

**Review on Immunological Perspectives and Therapeutic Management Strategies for COVI…**

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Nov 2024

Rushikesh K. Kakde · Nitin R. Kale · Gajanan Sanap

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... Pozitivitet u novorođenčadi najvjerojatnije je posljedica bliskog kontakta s oboljelim odraslim osobama neposredno nakon porođaja. Dvije nedavne studije pokazale su zanimljive rezultate -prva je uputila na prisutnost specifi čnih IgM i IgG protutijela u serumu dva novorođenčeta čije su majke imale pneumoniju COVID-19, a u drugoj su opisana tri novorođenčeta s ranim SARS-CoV-2 infekcijom (14, 15). Iako se u ovom trenutku ne može utvrditi mogu li majke mlijekom prenijeti SARS-CoV-2, dojenje se potiče uz pridržavanje mjera opreza (upotreba maski za vrijeme dojenja, pranje ruku sapunom i vodom prije i nakon kontakta s djetetom, dezinfekcija površina) (16). ...

**Infekcija SARS-CoV-2 (COVID-19) u djeceSARS-CoV-2 infection (COVID-19) in children**

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Jun 2020

Lorna Stemberger Marić · srđan roglić

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... Accordingly, the researchers reported the first case of vertical transmission of COVID-19 at late pregnancy. Recently, the results of some studies have reported the vertical transmission of COVID-19 with no adverse outcomes for the fetus or newborn; however, some of them were based on clinical diagnosis and could not detect COVID-19 by

PCR in newborns or report special antibodies (10, 11). Furthermore, some researchers detected COVID-19 in the newborn's blood; nevertheless, it was not determined whether the route of transmission was placenta, blood, or amniotic fluid (12,13). ...

**Vertical Transmission of Coronavirus Disease 2019: A Case Report**

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K Dehghan · Sakineh Aghazadeh

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... Consequently, this reduced receptor availability may contribute to a lower incidence of severe disease in neonates, though they remain susceptible to SARS-CoV-2 infection [75]. Additionally, the presence of maternally derived antibodies and the neonatal immune system's ability to mount a response against the virus may also influence the clinical outcomes in infected neonates [76][77] [78] . Understanding these differences is crucial for developing targeted preventive and therapeutic strategies to protect this vulnerable population. ...

**Transplacental Transmission of SARS-CoV-2: A Narrative Review**

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Minh Tien Bui · Cam Anh Nguyen Le · Linh Duong · Trung Kien Nguyen

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... This would theoretically provide protection against COVID-19 in neonates. However, the maternal protection is uncertain due to multiple factors such as maternal antibody concentration, placental transfer rate, and time from infection to delivery [21] [22] [23]. A previous study showed that most neonates who tested positive for SARS-CoV-2 after birth were asymptomatic [24]. ...

**Clinical characteristics and risk factors of severe COVID-19 in hospitalized neonates wit…**

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Sep 2024 · Riv Ital Pediatr Ital J Pediatr

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... When IgM is detected immediately after birth, they are usually linked to in utero production, even when there is no clear detection of the responsible pathogen. In a particular case, IgM specific to SARS-Cov-19 was detected only a few hours after birth, but all the newborns tested negative for the virus (46). Our results show that the end of pregnancy/childbirth process have no impact on anti-PS IgM and IgG antibodies because levels of these antibodies did not change from birth to 9 months postpartum in the mothers. ...

**Acquisition of anti- phosphatidylserine IgM and IgG antibodies by infants and their mothers…**

Article

Jul 2024

Muyideen Kolapo Tijani · Bandar Hassan Saleh · Allan Lugaajju · Michael Walch

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... When IgM is detected immediately after birth, they are usually linked to in utero production, even when there is no clear detection of the responsible pathogen. In a particular case, IgM specific to SARS-Cov-19 was detected only a few hours after birth, but all the newborns tested negative for the virus (46). Our results show that the end of pregnancy/childbirth process have no impact on anti-PS IgM and IgG antibodies because levels of these antibodies did not change from birth to 9 months postpartum in the mothers. ...

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... Наконец, неясно, как недавно появившиеся вирусы, такие как коронавирусы SARS и MERS, могут способствовать NDD [116,117]. Также неизвестно, приводит ли тяжелый острый респираторный коронавирусный синдром, вызвавший пандемию COVID-19, к длительным последствиям для развития мозга и поведения, в то время как предварительные данные предполагают, что пассивный перенос антител от матери к эмбриону возможен [118]. ...

**НЕЙРОВОСПАЛИТЕЛЬНАЯ ТЕОРИЯ ШИЗОФРЕНИИ. РОЛЬ…**

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... We still don't know how viruses get into the placenta. (Zeng et al., 2020) When SARS-CoV-2 enters lung cells via the ACE2 receptor, the serine protease TMPRSS2 is thought to be responsible for cleaving the spike glycoprotein to allow fusion. To ascertain whether ACE2 +/TMPRSS2 expression is found in placental cells, single-cell RNA sequencing data analysis was incorporated into three experiments. ...

**Worse Impact of COVID-19 in Pregnant Women**

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... Another related study by Schwartz [61] studied pregnant women suffering from COVID infection and reported, that there is no reference of transplacental or intrauterine transmission of virus. Zeng et al. [62] investigated immunoglobulin M (IgM) in babies and revealed a high level of antibody IgM in their blood. A contradictory study by Farhat et al. [63] reported that about four neonates were positive for PCR test, as their

mothers were symptomatic and doubtful for COVID-19 infection during pregnancy. ...

**Immunity Patterns of Covid-19 Recovered Patients in Gilgit Baltistan, Pakistan**

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... Similarly, they did not identify significant differences between genders. Interestingly, infected women demonstrate elevated IgG levels compared to men, suggesting a potential association with the higher survival rates and improved prognosis observed in females [34, 35] . Furthermore, the study by Kutsuna et al. demonstrated that the antibody levels in males were higher than in females [36] . ...

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... Por otra parte, se han detectado anticuerpos IgM e IgG a SARS-CoV-2 en algunos recién nacidos de mujeres infectadas (Kotlyar et al., 2021; Zeng et al., 2020) . Los anticuerpos IgG pueden atravesar la placenta, sin embargo, los IgM al ser de mayor tamaño generalmente no la atraviesan, lo que sugiere que el SARS-CoV-2 puede transmitirse in útero. ...

**Impacto del COVID-19 y su vacunación en el embarazo**

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... This observation is contrary to earlier studies which have reported a higher prevalence of antibodies ranging from 60% to 100%. 15, 16 This finding is interesting as seroconversion is necessary for pregnant women's protection from COVID-19. The lower prevalence of seropositivity in our study might be due to the remote timing of

the administration of vaccines and the exclusion of subjects with a history of prior COVID-19 infection. ...

**SARS CoV-2 Antibodies in Cord Blood of Neonates Delivered to Pregnant Mothers…**

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Mar 2024

Priyanka Tank · Suraj Chawla · Rakesh Tank · Jyoti Sangwan

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... They reported maternal fatality rates of 10% and 37% respectively, in which maternal and perinatal morbidity and mortality were not exempt. [8][9][10] [11] COVID-19 disease may be associated with adverse maternal and neonatal outcomes in pregnancy, but there are few controlled data to quantify the magnitude of these risks or to characterize the epidemiology and risk factors. 12 During pregnancy, women experience immunological and physiological changes that could increase their risk of more serious illness from respiratory infections. 2 Changes in the maternal cardiovascular and respiratory systems, including increases in heart rate, stroke volume, oxygen consumption, and decreased lung capacity, as well as the development of immunological adaptations that allow the mother to tolerate a fetus antigenically distinctive, increase the risk for pregnant women of developing serious respiratory disease. ...

**Maternal and perinatal outcomes associated with COVID-19: A review of the literature**

Article

Nov 2023

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... Still, the qRT-PCR screening was negative for COVID-19 when taken from the placenta and cord blood, implying that intrauterine vertical transmission did not occur [41,42]. Two articles highlighted the probability of vertical transmission of COVID-19 due to the presence of IgM antibodies in blood obtained from three neonates delivered to women with COVID-19, while the respiratory samples were all negative for COVID-19 [43, 44] . ...

**Perinatal Outcomes of Newborns of COVID-19-Infected Pregnant Women: An Updated…**

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Feb 2024

Khaled El-Atawi · Yasser Nabawy Elsayed · Muzafar Gani Abdulwahad · Maysa Mohamed

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... One of the significant reasons behind the rapid spread of COVID-19 is the lack of specificity in clinical detection protocols [3]. Molecular approaches such as quantitative real-time reverse transcription-polymerase chain reaction (rRT-PCR) [4] and other procedures such as serologic tests [5] and viral throat swab testing [6] are required and widely utilised for the detection of COVID-19. However, studies have demonstrated that chest radiographs (X-rays) [7] and chest computed tomography (CT) scans [8] can assist and reveal anomalies indicative of various lung diseases, involving COVID-19. ...

**A Review on Application of Artificial Intelligence for Detection of COVID-19**

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