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Review Article

COVID 19 and Pregnancy, A New Frontier, A New Problem, A Similar Challenge

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COVID 19 is a pandemic that has devastated multiple communities. The latest numbers, as of April 3, 2020, show a disease prevalence of 1,097,909 worldwide, attributing to 59,131 deaths, according to the Johns Hopkins University Coronavirus Resource Center. There does not exist a treatment regimen, nor is there a vaccine available. Current management regimens have been centered around rapid diagnosis following by expedient isolation and supportive care.

There has been little literature investigating the impact of COVID 19 upon pregnancy. Although the virus is significantly more impactful in patients with comorbidities, pregnancy does create an immunocompromised state. Furthermore there is the question of vertical transmission from mother to fetus. Finally, the question of vaginal delivery versus caesarian section must be entertained to appropriately care for the mother, child and health care team.

The purpose of our manuscript was to review the literature, study a reasonable sample size, and investigate the COVID 19 disease process in the latter stage of pregnancy and the labor process. We also wanted to recommend a diagnostic criteria for gravid females presenting to the hospital with questionable symptoms of COVID 19.

We searched the databases of PubMed, Google Scholar, Science Direct and Medline with the focus of COVID 19 and its impact on term pregnancy and labor. Articles were reviewed for diagnostic criteria, clinical presentation, confirmatory testing for COVID 19, labor procedures and the impact on the newborns.

There were 122 patients that were identified [1-5]. This is the largest study, to date, that has been prepared. The patient population we included was 37 weeks and over. Clinical symptoms upon presentation were fever, cough and fatigue in decreasing order. Laboratory testing revealed leukopenia in 80% in one study [3]. 99.18% (121/122) underwent vaginal delivery, without complications. There was 1 case of transmission to the newborn baby. The products of conception were tested in only two studies, n=40, and they were negative for COVID 19, despite the mother being positive.[4,5] The diagnosis of COVID 19 in the mother was established using real time reverse transcription polymerase chain reaction, RT-PCR, and CT Chest imaging [1-3,5].

Studies on COVID 19 in pregnancy have been sparse. The disease entity was only discovered in late 2019. First described in the Hubei region of China, the virus has since spread to 180 countries at last count and infected over one million confirmed cases. Classic presentation of infected patients consists of fever, cough and fatigue, symptoms that were described by our studied pregnancy population as well. Lymphopenia, has been a key laboratory finding in the COVID 19 population.[3] The RT-PCR has been employed as the gold standard diagnostic laboratory test, however, its accuracy has been limited to 60%. Diagnostic imaging, CT scan of the chest, in patients presenting with clinical symptoms carries both sensitivity and specificity of greater than 90%. Radiation, however, during pregnancy does have potential complications, and therefore is used judiciously and often refused by the patients. Classically, the findings of peripheral ground glass opacifications have been described at the key findings in COVID 19, and these findings were represented in the infected pregnancy population as well.[1,3] Interestingly, none of the papers mentioned testing the patients with an IgM-IgG serum assay, which has a reported accuracy of greater than 90% and obviously avoids any radiation exposure.

The delivery process for COVID 19 positive patients has not been well studied. While there exist strict criteria for performing caesarean sections, the diagnosis of COVID 19 was not a factor in those guidelines or any subsequent ones. The virus is spread by droplets, however can be aerosolized during oralpharyngeal procedures such as intubation or ventilation. 99.18% of the women in our study underwent vaginal delivery, with only one baby affected. An argument could be constructed that the newborn was infected and affected post-partum, especially as the products of conception from two alternate studies did not report any vertical transmission. There, however, is not enough data to make a definitive conclusion.

We also propose a diagnostic regimen for pregnant women who may be infected with COVID 19 upon presentation. Although this may not entail vertical transmission for the newborn, the patient would continue to be a risk for herself, healthcare workers and any individual in previous and future contact. Pregnant women who present with two of the following three clinical symptoms: fever, cough, fatigue should undergo sputum or oropharyngeal swab for RT-PCR. They should also undergo serum IgM-IgG assay testing for COVID 19, WBC count, erythrocyte sedimentation rate, ESR, and C-reactive protein, CRP. ESR and CRP have been found to be elevated in the infected patients. We recommend a presumption of positive testing, until the laboratory testing in reported. Negative testing does not exclude the diagnosis and at that time diagnostic imaging, CT chest, should be obtained. While this regimen may seem extensive and aggressive, it underscores the importance of immediate isolation to protect the patient, newborn child, healthcare workers and all subsequent contacts.

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