The Effects of COVID-19 & Pregnancy
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Literature Review
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BACKGROUND
- Starting late December of 2019 in Wuhan, Hubei province China a respiratory virus emerged called Coronavirus.
- It is thought the virus developed from China’s “wet markets” where consumers buy animal products from unsanitary conditions.
- On March 11, 2020, the World Health Organization declared a pandemic (worldwide spread).
- In the United States we currently have 9.96 million confirmed cases, with this number rising.
- More people recover (97%) than die (238,000)
- The virus is 80% genetically identical to SARS-CoV and MERS
- Generally, coronavirus causes a common cold, but can lead to severe respiratory distress.
- Pregnancy is a state of immune suppression, which makes this population especially vulnerable.
- It is estimated roughly one-third of pregnant woman die from the virus.
- This poster will highlight coronavirus pathophysiology, diagnosis, treatment, obstetric workflow, how it affects the placenta, and breastfeeding recommendations.

METHODS
- CINAHL and PUBMED
- Search terms: Coronavirus, Pregnancy, How COVID-19 Affects Pregnancy, Coronavirus Treatment, Breastfeeding, Obstetric Workflow
- Electronic search parameters
  - Peer-reviewed articles
  - English language
  - Title and abstract screening for eligibility
  - Full text articles
  - Twelve articles (2020) selected

RESULTS
Pathophysiology:
- RNA virus working by reverse transcriptase
- Transmitted via microdroplets of an infected host, entering the conjunctiva or nose.
- Nose has the highest number of receptors
- A double domain glycoprotein which binds with ACE2 resulting in different symptom severity
- Chest x-ray shows “peripheral airspace shadowing” and “ground-glass opacities”

Symptoms:
- Window of up to two weeks to start seeing symptoms.
- Unique to pregnancy is Gestational rhinitis which can mask coronavirus.
- Initially symptoms are:
  - Slight cough, mild shortness of breath, fatigue, sore throat, low-grade fever, and a loss of taste and smell.
- As baby grows maternal total lung capacity becomes reduced leading to:
  - Physiologic dyspnea from diaphragm changes, increased O2 demands, and gestational anemia.
- Pregnancy is a hypercoagulable state and poses increased risk for thrombi and clotting.

Placental Profusion Compromise:
- Placenta is the main organ that transports O2 and nutrients.
- COVID-19 damages the placenta’s villi which help in O2 exchanging capabilities.
- Shanes et al 2020 found maternal vascular malperfusion, miscarriages, preterm birth, preeclampsia, even stillbirth.
- Other symptoms: villous infarctions, agglutination, and maturation.
- No inflammation noted and APGAR scores were 8-9 at 1 and 5 minutes
- The placentas are examined by: measurement, sectioning, weight, and the cut surface.

RESULTS
Obstetric Workflow:

RESULTS
Diagnosis:
- Nasal swab - when mother presents for delivery
- Viral test - can detect if an individual actively has the virus. Usually 3 days to build up a viral load.
- Antibody test - to see if an individual had coronavirus
- Insert nasal swab until you hit resistance and then some. Results usually within 24 hours.

Treatment:
- To date there is no cure
- A vaccine is in the making but will take time
- Adequate rest, hydration, nutrition, and electrolytes is the first line of treatment
- In extreme cases oxygen, ventilation, antibiotics, vasopressors, and antivirals.
- Lopinavir and Ritonavir are preferred for pregnant women to take. It is safe for the baby. Take two capsules twice a day

Breastfeeding Recommendations:
- Breastmilk is safe; therefore, breastfeeding is encouraged.
- It is recommended to avoid skin-to-skin contact, with a positive result.
- Mother must wear a mask while breastfeeding if positive

CONCLUSIONS
- Overall, coronavirus has caused much concern for our nation and we must protect our vulnerable populations such as the elderly and expectant mothers.
- Since it is an RNA virus it is hard to find a cure.
- Mothers should take special precautions due to immune suppression and physical respiratory changes.
- There have been documented placental effects, although maternal and fetal outcomes are promising.

ACKNOWLEDGEMENTS

Figure 1: Chest radiograph in COVID-19

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