

DISCUSSION FROM THE ELIZABETH GLASER PEDIATRIC AIDS FOUNDATION'S EVIDENCE TO ACTION WEBINAR: COVID-19 AND ITS IMPACT ON PREGNANCY

The answers below were answered live during the webinar hosted on April 15, 2020. If you have follow-up questions or if your question was not answered here, [feel free to review our FAQ and research library devoted to COVID-19, pregnancy, HIV and pediatrics](#). We update this library regularly with the latest research. We are also available to answer your questions directly! Email publications@pedaids.org with your question, and we will send you an expert-informed response within a day. To receive routine updates around this topic, please sign up for our newsletter [here](#).

E2A WEBINAR Q&A TRANSCRIPT:

Lynne Mofenson: So starting out here, I just want to point out I am not an expert in coronavirus. This is all from my reading and so some of the questions I'm not going to be able to answer without going looking things up.

GENERAL COVID-19 QUESTIONS

Q: Current data show an increase mortality among African Americans. Is race, ethnicity a risk factor for increased mortality?

A: I think that most people feel that it is not race and ethnicity per se, but it's poor access to health care and increased comorbidities, higher rates of diabetes, higher rates of hypertension, etc. And I believe that's the latest feeling that there's no genetic aspect here. It is more socioeconomic.

Q: What are the viral structural differences between SARS COV and SARS COV2?

A: There are some differences. I don't know exactly what the genetic differences are. I think that it's called SARS because the genetic resemblance is closer to the SARS than MERS.

Q: What was the sensitivity and specificity of the RTPCR?

A: This is a very good question, and I don't have the answer. No diagnostic is 100% sensitive and 100% specific, and I believe that there are a variety of PCR tests out there, and I don't know that all of them have had their sensitivity and specificity tested.

Q: Any risk with co-morbid malnutrition?

A: Risk of COVID? I think that things that would make you immunosuppressed would potentially make you more likely to have severe disease. The factors here are not associated with an increased risk of infection. It's an increased risk of severe disease with infection. So just remember that. And there wasn't really anything that talked about malnutrition.



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Q: What scientific, biological, or environmental factors can explain the low COVID-19 cases in many African countries?

A: Several things play into the low COVID-19 rate in African countries to date. First, testing for COVID-19 is just starting, so the actual extent of the problem is not well-established yet. Second, the introduction of COVID-19 into Africa may have been more recent (e.g., "imported") and hence community spread is just starting. Finally, age is a big issue. As we know there is a huge "youth bulge" in Africa, with majority of the population being young, compared to countries like China and the US, where the population is much older. Given that COVID-19 severity is related to age, it may be that many people are having unrecognized mild infection with COVID-19 and aren't getting tested because they think they have a "cold" - we may see more cases with intra-family spread to older grandparents, but again symptoms need to be recognized and the patient tested - older individual may develop severe disease and die at home and not be recognized as having disease. We really need surveillance prevalence surveys in the general population to better understand the extent of the epidemic in Africa, and who is getting infected and how severe is the disease.

COVID-19 AND PREGNANT WOMEN

Q: Is cardiomyopathy and pregnancy specific to gestational age?

A: So very few, if any reports, of people infected during the two cases of cardiomyopathy. I reported they were both in third trimester women who had symptoms at the time of delivery.

Q: Did any publication view compare pregnant women versus adult non-pregnant women?

A: Not specifically, but the graphs that I showed that compared adult non-pregnant individuals included both men and women. But there wasn't any one that just gave you, "Here's what's on women," at least that I saw.

Q: Are women who are not currently pregnant included in the trials?

A: Yes, women who are not currently pregnant are included in the trials if they are on contraception and they're not breastfeeding, and there is no regulation that requires inclusion of women who are pregnant, although a number of people think that there should be. Women in general can participate in clinical trials. None of these clinical trials have yet had results though I have heard that the Remdesivir trial may have results relatively soon.

Q: Have you compared with the general study population or have you tried to match pregnant women with non-pregnant women?

A: No, I have not tried to match pregnant women and not. It's hard enough to be able to get the data on the pregnant women, let alone trying to go into the COVID-19 cases in adults and distinguish men and women. So I haven't done that yet, and I agree, it would be good to be able to do that.



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Q: In Latin America, some women have had deaths, late diagnosis, different from China or Europe where there were no maternal deaths.

A: I have not seen any publications from Latin America showing pregnant women mortality, but if we say that the disease is similar to non-pregnant individuals in that age group, the mortality is 0.2%, so one would expect that if you had a large enough number of pregnant women, that you would see some mortality given a 0.2% mortality.

Q: How do symptoms and mortality for pregnant and nonpregnant women compare as compared to all adults? Are women who are not currently pregnant included in the clinical trials and are there not regulations to report inclusion of women who are and are not pregnant?

A: CDC probably has some division by sex, but I don't believe there's a difference in mortality between women and men. What I showed you was the overall adult mortality, and for that particular age group, the age group of women of childbearing age, 20 to 44, the mortality is only 0.2%.

Q: I'm 36 weeks pregnant. I haven't gotten tested and I have no symptoms. Do I need to be scared to give birth in the hospital?

A: I don't know where you live. Part of the answer is where you live in New York City, if you go to the hospital, you'll get screened. Is there a possibility to be contaminated while in the hospital? I think that would be unusual. Most hospitals have in place good infection control and disinfection measures, and I think the chance of getting infected in the hospital is much, much lower than the chance of having an abnormal birth outcome if you have a complicated pregnancy and delivery and you're not in the hospital.

Q: Were postpartum symptoms observed?

A: So some of the postpartum symptoms were in women who tested negative before giving birth and then became positive postnatally. And then some were in women who tested positive and then first had infection. Both of those were seen.

Q: Do I think all pregnant women should be routinely screened?

A: That's a good question. Certainly, the data from New York City suggests that if you're in a city with a heavy COVID-19 burden, that that makes sense to do. From the health provider perspective, it sounds like if you're in such a situation, you should be using PEP for all deliveries, not just ones in which you know that there's COVID 19. I don't know that the routine screening question is answered, but it certainly seems to me that if you're in a city like New York City, it would make sense.

Q: Can you expand on evidence about HIV-positive pregnant women with COVID?



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A: The only two things I could find on HIV-positive people and COVID were the two papers that were case reports from China that basically said very little. I have not seen any data on HIV-positive pregnant women.

Q: Use of nonmedical masks for pregnant women when accessing care?

A: Right now in Maryland, they're requiring us to wear a mask when you go into a grocery store or when you go on the Metro, and I would wear a mask when I went into the physician's office. That's just a personal feeling.

Q: Are there co-morbidities that could have influenced the outcome and severity?

A: There were a number of women who had preeclampsia and gestational diabetes and gestational hypertension. There were a number of women with chronic conditions. The problem is that the papers do not describe this very well, and the papers from China where the majority of the data come from, look duplicative so I can't discern whether it's the same women or not.

COVID-19 AND VERTICAL TRANSMISSION

Q: Do you have any general advice on mode of delivery? What factors would you use for mode of delivery?

A: I think that the factors deciding on mode of delivery should be based on obstetric parameters that I don't know that there's any reason to say that C-section is more quote 'preventative' of intrapartum transmission than vaginal delivery, given that a number of the kids with the positive tests came from a C-section. I think that you would just follow routine obstetric care.

Q: What should be the message regarding mother-to-child transmission?

A: I think the message has been, we don't know if it occurs, and I think that's still the message. If it does occur, it appears to be infrequent. Based on the data that I showed you, it was about 4%. But I don't think that the data are definitive, so we could say, is it possible? Yes. Has it been shown? Not yet.

Q: Are any positive children from the mother included in these trials?

A: No. No children in these trials. It's nonpregnant women who can participate and no children yet.

Q: Is there any documented positive placenta cord blood?

A: No. Very few, under 20 tested, but no.

Q: Is vaginal delivery feasible and possible?



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A: Yes. I think there are some women who were described in these papers who had vaginal delivery and had an infant who tested negative and did fine. I think delivery should be based on obstetric indications.

Q: Is there any evidence about breastfeeding transmission of COVID-19? Are there COVID-19 antibodies found in breastmilk?

A: All breast milk samples evaluated to date (currently the number is 40) have been negative for SARS-CoV-2, so it does not appear to get into the breast milk. I believe that ACE 2 enzyme can be found in breast epithelial cells so there might be potential for this to occur, but that would require that the virus is in the blood system to get to the breast. SARS-CoV-2 viremia (virus in the blood) appears to be infrequent - in studies in China only present in 1% to 15% of individuals with COVID-19 disease, depending on the paper. To date, the evidence does not support SARS-CoV-2 transmission by breast milk. In terms of antibody - if a mother had IgG antibody (indicating past infection) to SARS-CoV-2, like other antibodies, it would likely be found in breast milk; I believe IgM (indicating more recent infection) is too big to be secreted into milk. Whether these would be protective for the infant is unknown.

COVID-19 AND INFANTS

Q: What could be the explanation for survival mild infection seen in those infants whose immaturity is immature?

A: We don't have enough data right now to be able to say that we have infection or not. I can say that there's at least one or two deaths in the U.S. in neonates who had proven infection, I believe acquired postnatally. So children can be sick, although they appear to have milder disease.

Q: Did any study look at confirming the source of infant COVID and assuming babies could have acquired infection from other contacts?

A: One or two of the cases I presented with the virologic tests, at least one had horizontal contact, the other one had breastfeeding. So a number of those infants could have acquired infection outside. But a number of the infants, the authors wrote that the mother wore a mask. It was an operative delivery room. The infant was isolated immediately.

HEALTH WORKERS

Q: Any advice for pregnant health care workers?

A: Same advice that one gives any health care worker, which is to use protective equipment.

TREATMENT



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Q: Can steroids be used in the treatment?

A: Right now my understanding is that the Infectious Disease Society of America just issued guidance on treatment and management that you can find on the IDSA webpage, and they recommend that steroids not be used in the treatment. There's concerns that it actually makes it worse. People are looking at these monoclonal antibodies, anti-inflammatory monoclonal antibodies, in clinical trial.

Q: Specific prophylaxis?

A: No, I think if you're looking at prophylaxis, we really need to look at the randomized clinical trials. There are several that are looking at the potential to use Hydroxychloroquine, but there are no data yet showing that anything is a good treatment or a good prophylaxis, so I wouldn't use any of those drugs.

Q: Do you think ART will be protective?

A: I do not know. The question of whether protease inhibitors are a good treatment is unresolved. In vitro testing does not necessarily result in vivo efficacy, as we saw with Lopinavir, Ritonovir. So I would wait until I saw data from trials, and until we have data from countries in which HIV is more endemic, because we have very few cases in HIV infected individuals.

Q: If the disease gets worse on day 8-10 as the immune system is kicking in, is it your opinion that the major pathophysiology in severe cases is the immune response? If so, why are we giving antivirals to the sickest people?

A: Severe disease involves both the virus and the immune response to the virus. The sickest people have a higher viral load in their secretions than do those with milder disease. So there is a need for an antiviral effects. There are studies looking at immune modulators (primarily monoclonal antibodies used to treat rheumatoid arthritis and other inflammatory conditions like Sarilumab, Tocilizumab) to tamper down the excess immune response as well as get rid of the virus. Steroids are not felt to be indicated as some initial studies suggested worsening of disease.

Q: Anything that you came across about use of ACE Inhibitors eg. losartan to prevent or treat?

A: ACE inhibitors do not affect the ACE 2 enzyme. The ACE-2 enzyme catalyzes/increases the cleavage of the vasoconstrictor peptide, angiotensin 2, into the vasodilator peptide, angiotensin 1. The ACE inhibitors block the enzyme that converts angiotensin (the vasodilator) into angiotensin 2 (the vasoconstrictor) - for hypertension you don't want constricted vessels, you want dilated vessels so blood pressure drops. ACE inhibitors block the ACE 1 enzyme and/or block peptide angiotensin 2 binding to its receptor; the ACE 2 enzyme takes the angiotensin 2 and cleaves it to angiotensin 1 the good vasodilator peptide. Some ACE inhibitors actually increase expression of ACE-2 enzyme on the cells, which raised concern that perhaps it might increase risk of infection, which has not been seen. Some Chinese investigators have hypothesized that severe lung disease in COVID-19 may be associated with high levels



of angiotensin 2 (the vasoconstrictor) so having more of the enzyme (ACE 2) that gets risk of angiotensin 2 might be beneficial, and there are some clinical trials that are looking at one of the ACE inhibitors, losartan, as treatment for severe disease. No data yet.



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