COVID-19 in pregnancy: results of a living systematic review

Dr Mercedes Bonet
PPH Community of Practice Virtual Annual Meeting
Outline

- Background
- Living systematic review on COVID-19 and pregnancy
  - Methodology
  - What do we know about COVID-19 infection?
    - Prevalence
    - Clinical manifestation
    - Outcomes
- Key messages
- Additional resources
Background:

- Estimates of maternal mortality in times of COVID-19
  - Increased in maternal mortality expected
    - Estimated 28,000 additional maternal deaths in 12 months with a 10% in service coverage during pregnancy
    - Estimated 24,400 additional maternal deaths if small reductions in availability of health workers and supplies
    - But up to 113,400 if greater health system disruptions combined with strict movement restrictions
  - Limited access to parenteral uterotonics or blood banks would account for up to 30% of the additional estimated deaths

- Rapid production and publication of new evidence
  - no review has comprehensively evaluated the comparative data

COVID-19 in pregnant women: a Living Systematic Review on prevalence, presentation, prognosis and treatment

- Pregnant and recently pregnant women at risk, suspected, and diagnosed to have COVID-19

https://www.birmingham.ac.uk/research/who-collaborating-centre/pregcov/index.aspx

Prospero registration: CRD42020178076
PregCOV-19LSR Project - methods

- Weekly updates of searches, and analysis updated every two weeks
  Medline, Embase, Cochrane database, China National Knowledge Infrastructure (CNKI) and Wanfang databases, WHO COVID-19 database, EPPI-Centre, Cochrane Gynaecology and Fertility group, preprints, social media and blogs, websites that mapped COVID-19 studies, social media, guidelines, and reference lists of included studies and unpublished data
- No language limits
- Analysis updated every two weeks
- Rapid peer reviews performed by an external international group and publication of online summaries of the findings

https://www.birmingham.ac.uk/research/who-collaborating-centre/pregcov/index.aspx
Results as of June 26, 2020

77 studies provided data on prevalence, clinical manifestation and risk factors

8 studies (95,247 women) compared pregnant vs non-pregnant populations

4 studies (2,230 women) compared pregnant women with vs without COVID

Excludes case reports and case series

USA (26), China (24), Italy (7), Spain (6), UK (3), France (3), and one each from Portugal, Belgium, Brazil, Mexico, Japan, Denmark, Israel and the Netherlands

https://www.birmingham.ac.uk/research/who-collaborating-centre/pregcov/index.aspx
Prevalence of COVID-19 disease in pregnant/postpartum women

- Overall rate of COVID-19 disease
  
  10% (95% CI 7-14%) 28 studies, 11,432 women

- Variation according to testing strategy
  
  7% of women by universal screening among admitted women
  
  18% of women by symptomatic screening/history of contact

Clinical manifestation of COVID-19 in pregnancy/postpartum

- No known difference between the clinical manifestations of COVID-19 in pregnant/postpartum women

Clinical manifestation of COVID-19 in pregnant and non-pregnant women

- Frequency of clinical manifestations appear to be lower than in non-pregnant reproductive aged women

Outcomes in pregnant and non-pregnant reproductive aged women with COVID-19


<table>
<thead>
<tr>
<th>COVID-19 related outcomes</th>
<th>No. of studies</th>
<th>Pregnant with COVID-19</th>
<th>Non-pregnant with COVID-19</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any mortality</td>
<td>4</td>
<td>16/8282</td>
<td>208/83327</td>
<td>0.8 (0.5-1.3)</td>
</tr>
<tr>
<td>Admission to ICU</td>
<td>4</td>
<td>121/8276</td>
<td>758/83330</td>
<td>1.6 (1.3-2.0)</td>
</tr>
<tr>
<td>Invasive ventilation</td>
<td>4</td>
<td>43/8276</td>
<td>226/83330</td>
<td>1.9 (1.4-2.6)</td>
</tr>
</tbody>
</table>

Events/N
# Pregnancy outcomes in pregnant women with and without COVID-19

<table>
<thead>
<tr>
<th>COVID-19 related outcomes</th>
<th>No. of studies</th>
<th>Pregnant with COVID-19</th>
<th>Pregnant without COVID-19</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any mortality</td>
<td>1</td>
<td>5/427</td>
<td>0/694</td>
<td>18.1 (0.9-327.8)</td>
</tr>
<tr>
<td>Admission to ICU</td>
<td>1</td>
<td>40/427</td>
<td>1/694</td>
<td>71.6 (9.8-523.1)</td>
</tr>
<tr>
<td>Preterm birth &lt;37 weeks</td>
<td>2</td>
<td>7/44</td>
<td>18/295</td>
<td>3.0 (1.2-7.9)</td>
</tr>
<tr>
<td>Caesarean section</td>
<td>3</td>
<td>184/491</td>
<td>577/1676</td>
<td>2.0 (0.7-6.1)</td>
</tr>
</tbody>
</table>

- **Events/N**

## Perinatal outcomes in pregnant women with and without COVID-19


<table>
<thead>
<tr>
<th>COVID-19 related outcomes</th>
<th>No. of studies</th>
<th>Pregnant with COVID-19</th>
<th>Pregnant without COVID-19</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stillbirth</td>
<td>1</td>
<td>3/427</td>
<td>2/694</td>
<td>2.5 (0.4-14.7)</td>
</tr>
<tr>
<td>Neonatal death</td>
<td>1</td>
<td>2/427</td>
<td>1/694</td>
<td>3.3 (0.3-36.1)</td>
</tr>
<tr>
<td>Admission to neonatal unit</td>
<td>1</td>
<td>64/427</td>
<td>37/694</td>
<td>3.1 (2.0-4.8)</td>
</tr>
<tr>
<td>Abnormal apgar at 5 minutes</td>
<td>1</td>
<td>0/30</td>
<td>12/740</td>
<td>0.95 (0.01-16.5)</td>
</tr>
<tr>
<td>Fetal distress</td>
<td>1</td>
<td>3/34</td>
<td>12/242</td>
<td>1.9 (0.5-6.9)</td>
</tr>
</tbody>
</table>
COVID-19 and pregnancy – key messages

- Prevalence of COVID-19 disease vary according to testing strategy.

- Typical COVID-19 symptoms manifest less frequently in pregnant and recently pregnant women than non-pregnant reproductive aged women.

- Pregnant women with COVID-19 may be at increased risk of requiring intensive care than non-pregnant women.

- Pregnant women with COVID-19 are more likely to deliver preterm and their babies admitted to the neonatal unit. These outcomes may be influenced by iatrogenic causes.

- This findings may change as new evidence emerges.
Additional resources

Living systematic review on COVID-19 and pregnancy

Country & Technical Guidance - Coronavirus disease (COVID-19)

FAQ

WHO Academy COVID-19 app available for free download from both the Apple App Store and Google Play Store

https://www.birmingham.ac.uk/research/who-collaborating-centre/pregcov/index.aspx

https://www.who.int/emergencies/diseases/novel-coronavirus-2019

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