



MOUNTAIN AREA HEALTH
EDUCATION CENTER

COVID-19 and the Pregnant Patient

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*Acute Care of the Symptomatic
Pregnant Patient*

Case Presentation

31yo G1 at 28wks 1d EGA calls her primary obstetric provider at outside facility to report vomiting and loss of taste and smell.

- Immediate family member has tested COVID positive
- Pt presents to ED at outside hospital now complaining of dry cough & muscle aches
- Temp 99.0 / pulse 137 / respiratory rate 16 / O2 Sat 100%
- No labs drawn. Pt previously tested for COVID--results pending
- Treated with IV fluids, IM Phenergan, and discharged home

Two days later, pt calls OB office to report severe vomiting and inability to tolerate PO intake. Pt advised to return to ED for evaluation.

- Temp 98.2 / pulse 142 / respiratory rate 16 / O2 Sat 100% / fetal heart rate 180
- Abnormal lab results: ABG 7.18 / ALP 160 / AST 37 / Anion Gap 16.0 / CO₂ 7 / Chloride 112
- Work-up significant for acidosis→thought to be dehydration mediated
- Decision made to transfer pt to Mission Health given concern for acidemia

Admission to MMH L&D

Upon arrival to MMH L&D, the following problem list was developed:

Non-anion gap metabolic acidosis

- ABG slightly improved at 7.21 with low bicarb. pCO₂ 15 / pO₂ 85 / anion gap 12.
- VS notable for tachypnea (rr 35) and maternal tachycardia
- O₂ Sat WNL
- CTA negative for PE
- Minimize IV fluids containing Cl
- Medicine service consulted

Nausea treated with Zofran, Pepcid and PRN Phenergan

COVID pneumonia

- Dry, non-productive cough persists
- Mild SOB with exertion. Maintains O₂ Sat on room air
- Afebrile
- CTA with lower lung nodular infiltrates consistent with pneumonia

HD #0 Evening of MMH Admission

Internal Medicine consult offers the following differential dx for non-gap acidosis:

- 1) GI loss of bicarb
- 2) Administration of excess chloride via IV fluids
- 3) Renal tubular acidosis

Recommendations are made for the following:

- Leave pt alone as she appears well
- Control nausea & GI symptoms
- Avoid NS or IV fluids with increased chloride content—recommend LR
- Repeat labs in AM with close attention to bicarb
- Does not recommend work-up for renal tubular acidosis at this time

HD #1

Medicine

- Mild crackles noted on B lung bases. Otherwise relatively clear lung exam
- Pt is not hypoxic and satting well on room air
- Assume tachypnea secondary to respiratory compensation of metabolic acidosis
- Bicarb 6 on BMP
- Pt started on prophylactic Lovenox dose 40mg daily
- Nephrology and Infectious Disease consults requested

Nephrology

- Notes that non-anion gap metabolic acidosis not well documented COVID complication, but has seen other patients with similar clinical presentations
- Bicarb drip started

Infectious Disease

- As pt is not hypoxic, does not recommend Dexamethasone, convalescent plasma, or Remdesivir at this time
- Ferritin, d-dimer, LDH, and CRP drawn

OB

- Considering BMZ for fetal lung maturity if emergent c-section warranted

Hospital Course

HD #2

- Pt feels well/condition improving. Sense of smell returns.
- Pt sitting well on room air
- COVID inflammatory markers--Ferritin 172 / LDH 197 / CRP 3.30 / d-dimer 2033 / Lactate unremarkable
- Hgb 8.5 / platelet count WNL
- Renal now suspects renal tubular acidosis secondary to COVID
- Anticipates need for potassium replacement as acidosis improves

HD #3

- Lungs clear
- Discontinue bicarb drip and start PO replacement
- OB provider notified of fever of 100.9 and O₂ Sat of 93-95% on RA

HD #4

- Fevered overnight, but tachypnea decreased. Lung exam improved
- No evidence of severe COVID disease noted
- Plan to keep inpatient for potassium & bicarb replacement

Hospital Course

HD #4 PM Update

- Pt now complains of difficulty catching breath. Cough worsened throughout day
- O₂ Sat 85-96% on RA / pulse 118-143 / rr 20-30bpm
- O₂ requirement has increased from 2L to 50% via high flow humidified O₂
- COVID-19 Convalescent Plasma Criteria Review & Attestation signed
- Dexamethasone & convalescent plasma ordered
- Primary diagnosis now acute hypoxemic respiratory failure → transfer to ICU
- Plan continuous fetal monitoring if O₂ Sat <95%
- Pulmonary Critical Care assumes care of pt

HD #5

- Low grade fevers persist
- SOB with exertion
- Worsening LFTs noted with AST 134 / Alk phos 181
- Pt noted to be at high risk for decompensation
- C-section cart & NICU cart/infant warmer placed in anteroom in anticipation of changes in maternal status

Hospital Course

HD #6

- SOB and dry cough persists. Pt de-sats when getting out of bedside chair
- GI symptoms have now resolved
- Pt deemed critically ill. Prophylactic Lovenox dose changed to treatment dose Heparin given concern for potential emergent c-section
- AST 601 / ALT 392 / Hgb 7.4 / HCT 23.6
- 2 units PRBC transfused
- Convalescent plasma dose administered

HD #7

- Temp, maternal tachycardia improving
- BMP & platelet count stable
- 8L of O₂—pt denies SOB, cough
- “I feel like I could get up & walk out the door!”

Hospital Course

HD #8

- Pt weaned from 4L O₂ to RA with O₂ Sat 100%
- Pt transferred to stepdown unit

HD #9

- Plan made to stop Dexamethasone with hospital discharge
- Will continue therapeutic Heparin dose

HD #10

- Treatment dose Heparin converted back to prophylactic Lovenox with plans to continue x 3wks
- Plan 10 day course of PO bicarb and then transition to Carafate (goal bicarb 20-25)
- PT DISCHARGED HOME!!

Most Common Symptom Manifestations

Allotey et al. (2020). Clinical manifestations, risk factors, and maternal and perinatal outcomes of coronavirus disease 2019 in pregnancy: living systematic review and meta-analysis. *BMJ*, 370: m3320.

Symptom	Percentage (%)
Fever	40
Cough	31
Dyspnea	19
Loss of taste	15
Myalgia	10
Diarrhea	7

Incidence of COVID-19 Sequelae in Pregnant Patients

Allotey et al. (2020). Clinical manifestations, risk factors, and maternal and perinatal outcomes of coronavirus disease 2019 in pregnancy: living systematic review and meta-analysis. *BMJ*, 370: m3320.

Sequelae	Percentage (%)
Pneumonia	49
Received O ₂ via cannula	30
Severe disease	13
Admitted to ICU	4
Invasive ventilation	3
Placed on ECMO	0.8
Died	0.6

Treatment Considerations



Dexamethasone—well characterized mortality benefit for severe COVID-19 illness

Convalescent Plasma—large studies suggest that plasma may provide immune boost if administered within 14 days of symptom onset

Remdisivir—MMH treatment team would not prescribe to pregnant pt as fetal safety profile unknown. Some recent publications/treatment guidelines advocate use

Care for Patients in Ambulatory Settings



ACOG Key Updates

September 2020

Retrieved from <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/03/novel-coronavirus-2019>



Testing

Community Mitigation Efforts

Precautions for Health Care Personnel

Location of the Mother-Infant Dyad

Resources Available

<https://www.acog.org/-/media/project/acog/acogorg/files/pdfs/clinical-guidance/practice-advisory/covid-19-algorithm.pdf>

<https://www.asrm.org/Patient-Mgmt-COVID-19>

<https://www.cdc.gov/coronavirus/2019-nCoV/index.html>

<https://priority.ucsf.edu/>

National Perinatal COVID-19 (NPC-19) Registry



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