Irish Medical Journal
Established 1867
Issue: Ir Med J; Vol 114; No. 1; P246

Management of an Unstable Preterm COVID-19 Pregnant Woman with Emergency Caesarean Delivery

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Abstract

Presentation
A 30-year-old, G2P1, BMI 29.5kg/m2 self-referred at 33 weeks' gestation with a one-day history of fever and nine-day history of non-productive cough with pyrexia.

Diagnosis
A chest X-ray was suggestive of COVID-19. Nasopharyngeal swabs were positive to COVID-19.

Treatment
Due to increasing tachypnoea, hypoxia and fetal tachycardia she underwent an emergency caesearean section under spinal anaesthesia.

Conclusion
Caring for a COVID-19 positive obstetric patient requires multidisciplinary input. Regional technique gives many advantages in unstable patients and should always be considered.

Introduction

While preliminary data showed that a higher risk of miscarriage, preterm birth, preeclampsia and caesarean delivery occur for pregnant women with COVID-19[1], recent researches suggest that obstetric patients are as susceptible to the disease as the non-obstetric population[2], with the majority of patients suffering mild to moderate flu like symptoms[3].

Absence of symptoms is also common in pregnancy with some patients deteriorating postdelivery[4], while late pregnancy infection appears to be associated with a good maternal-neonatal outcome.[5] We present our management of a 30-year-old obstetric patient with COVID-19 infection, in severe respiratory distress, who underwent a preterm emergency caesarean section for fetal tachycardia.

Case report

A 30-year-old, G2P1, BMI 29.5kg/m^2 self-referred at 33weeks' gestation to the National Maternity Hospital with a one-day history of fever and nine-days history of non-productive cough with low-grade pyrexia. On admission she was febrile (38^{o}C), tachycardic at 110bpm with normal respirations and 96% SpO2 on RA. She was started on cefuroxime 1.5g IV eight-hourly and clarithromycin 500mg 12-hourly and isolated in a negative pressure room. A COVID-19 swab was taken. A chest X-ray (Fig1) compatible with COVID-19. Bloods showed lymphopenia and raised bilirubin (Table1). She was confirmed as COVID-19 positive on day4 post-admission.

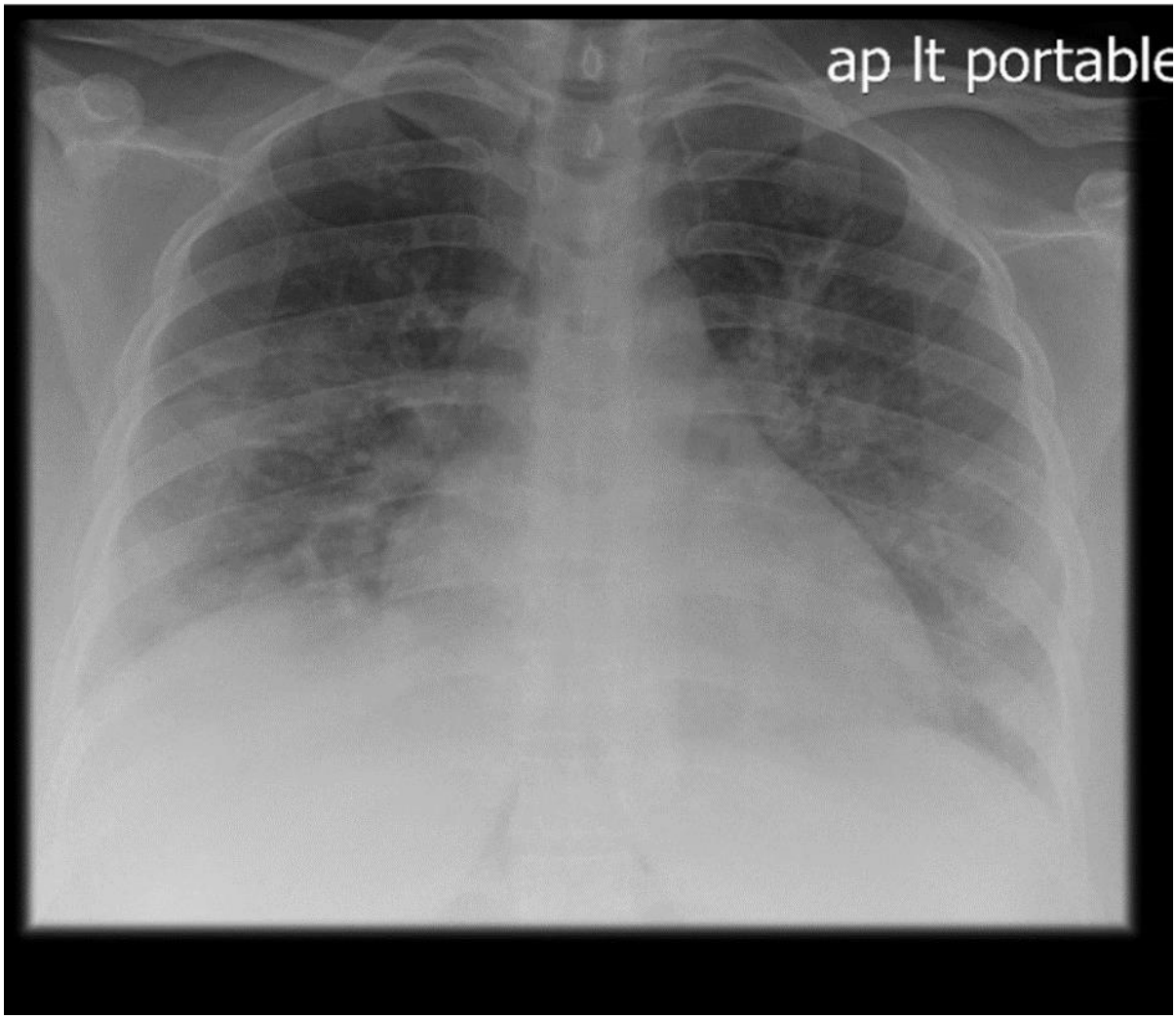

Fig 1: Chest XR at admission: patchy low-density infiltrates in the mid and lower zones bilaterally.

Table 1: Blood values at admission, before and after caesarean section.

	Admission	Before caesarean section	After caesarean section
Hb	11.3	10.7	10.6
WCC	6.4	8.5	9.3
Plt	285	347	358
Neutrophils	5.56	7.36	8.42
Lymphocytes	0.57	0.8	0.63
Monocyte	0.27	0.33	0.24
Eosinophil	0.0	0.0	0.0
CRP	11.3	-	-
Albumin	6.4	27	27
Sodium	133	138	134
Potassium	3.8	3.7	3.6
Chloride	107	108	106
Urea	1.6	2.5	2.8
Creatinine	55	58	54
Bilirubin	16	16	15
ALT	28	43	43
AST	38	60	60
ALP	278	262	238
PT	-	8.9	9.2
INR	-	0.82	0.85
APTT	-	25.8	27.8

She was kept fluid restricted to 1000ml/day, had daily CTGs, 4-hourly measurements of vital signs and antenatal steroid: betamethasone 12mg intramuscularly (2 doses). A venous blood gas showed pH 7.407, pO_2 6.69kPa, pCO_2 4.22kPa, HB 11.5g/dl, BE -4.4 and lactate 1.45mmol/l. A certain degree of respiratory alkalosis with only partial metabolic compensation is to be expected in late pregnancy, but the hypoxia was considered concerning.

She developed tachypnoea (RR 34-42bpm) with HR 104bpm and BP 107/70mmHg. Saturation was 90-92% on RA and O2therapy (2l) was commenced. She became pyrexic (38.7^oC) and unstable. SpO2 dropped to 75% but recovered with 4l O2. ABG showed hypoxia (pO2 8.7kPa), hypocapnia (pCO_2 3.8kPa), pH 7.45, Hb 10.6g/dl and lactate 1.8mmol/l. A full blood set was sent (Table 1), CTG showed fetal tachycardia (180-200bpm). A fluid bolus of 500mls was given with no improvement. An emergency c-section was called due to maternal and fetal concerns.

In the negative pressure theatre, a thorough debrief with all multidisciplinary teams took place to ensure minimal exposure and appropriate PPE equipment was donned. To reduce the risk of virions aerosolisation and to avoid intubation, a C-section under regional anaesthesia was performed, with the option to convert to general if needed. Vitals prior to siting spinal were HR 126bpm, SpO_2 98% on 4 litres nasal oxygen, RR 48bpm and BP 82/62mmHg.

A single-shot low-dose spinal anaesthetic (10mg hyperbaric-bupivacaine, 15mcg fentanyl, 100mcg morphine) was performed in left lateral position with O2 via nasal prongs. A phenylephrine infusion (1.62mg total) was used to preserve desired MAP (>60mmhg) minimising the fluids requirement. EBL was 370mls and a liveborn female infant was delivered weighing 2.23kg, Apgars 9 at 1 and 5 minutes. Baby was admitted to NICU for gestational age, her Covid-19 swabs were negative, and she was discharged home on day14.

The patient was transferred back to the isolation ward. An arterial line was sited, ABG was satisfactory, UO was monitored, O_2 and fluid restriction were continued. Hydroxychloroquine 200mg BD and Azithromycin 500mg OD tapered to 250mg OD the following day were commenced [2]. She was prescribed for 4500IU Tinzaparin. Her condition started improving 24hrs later. She was discharged 4-days post-delivery.

Discussion

There has been some uncertainty about the use of steroids for fetal lung maturation in the setting of COVID-19 infection. In non-SARS CoV-2 viral pneumonia, steroid treatment is associated with increased mortality [3]. Given the likelihood of preterm delivery and the clear benefit to the fetus at this gestational age steroids were deemed appropriate. Interestingly, the preliminary results of RECOVERY trial suggest that dexamethasone improves the outcome of hospitalized patients.[7] The antimicrobial therapy was based on a small clinical trial[8]. Following studies, however, did not confirmed its efficacy[9].

A low-dose spinal anaesthesia instead of CSE was preferred due to urgency of the delivery. We suggest performing regional anaesthesia for caesarean sections in patients with COVID-19 infections [10]. However, the systemic condition of the patient needs to be considered and measures must be in place to deal with potential cardiorespiratory instability.

Declaration of Conflicts of Interest:

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Patient Consent:

The authors declare that the patient provided written consent for the case report to be published.

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