

Pre-eclampsia in Unbooked COVID-19: A Review of Anaesthetic Considerations and Inference

Arun Muthukumar*

Department of Anaesthesia and Critical Care, Calcutta National Medical College and Hospital, Kolkata, West Bengal, India

ABSTRACT

Pre-eclampsia complicates any pregnancy. Anaesthetic management in a routine pre-eclampsia and eclampsia needs active emergency decision making. Unbooked cases contribute majority of low economic population approaching for emergency purposes. In the current rapidly rising COVID-19 scenario, for many unbooked cases reports cannot be obtained so easily and rapidly, in order to perform an emergency surgery. In such cases risk is taken by the anaesthetist on call while handling the patient. While awaiting test reports, proper precautions would keep the health care workers safe. Regardless of the symptoms any case in the emergency, if approached as COVID-19 positive helps prevent future catastrophes.

Keywords: Pre-eclampsia; Anaesthetic; Obstetrics anaesthesia; Severe acute respiratory syndrome

INTRODUCTION

The recent SARS CoVID19 (Severe Acute Respiratory Syndrome caused by Corona Virus of 2019) pandemic is rapidly raising, with numerous new cases and number of deaths daily. Due to the excess number of cases, the diagnosis of COVID19 disease keeps delaying, say for instance at least it takes a day for the whole process of sample collection from the patient to the report being received in the hand [1]. RTPCR (Real Time Polymerase Chain Reaction) has been largely employed in mass diagnosis of COVID-19. But still the need for rapid diagnosis and results delivery is highly on the rise.

Say for instance, surgeries like caesarean section, emergency laparotomy for perforation or obstruction demands emergency surgeries and exploration for saving lives as well as in decreasing the mortality. In the current scenario, most of the individuals are home isolated for their own safety purposes. Because of this many remain as an asymptomatic carrier or have mild to moderate symptoms. When the home bound individuals face emergencies like obstructed labour or severe preeclampsia or eclampsia, they would be needing emergency surgeries despite the unknown COVID-19 status [2]. The ongoing lockdown and home quarantine also impede the regular antenatal care in some population. In such cases, taking proper precaution for oneself and providing care to the patient would be the main concern for any health care worker fighting to combat COVID. This is particularly of much importance when comes to anaesthetic management for

any emergency surgeries. We have been providing anaesthetic care and emergency support continuously for the past 4-5 months in our hospital, unaccounting the presence or absence of proper COVID-19 test report. To accept this is the current scenario in any emergency set up all over India. Anaesthetists are more prone for aerosol generated infection even in normal cases, while handling intubation as well as extubation.

Unbooked cases constitute a larger population in lower economic groups. And when considered in any Government set up this will be the main population that requires emergency management [3]. Whatever the literacy rates remain, whatever the level of awareness that has been planted, still majority of this population doesn't find the importance of proper antenatal care and clinic visits. Pre-eclampsia is a threat in any pregnancy occurring in 6%-8% pregnant females with 85% of cases occurring in first pregnancy. Pre-eclampsia is known to be noticed in 64% of unbooked cases, of which 77% population needs emergency caesarean section [4].

DESCRIPTION

A 28 years old Primi gravida at 36 weeks+4 days, presented with abdominal pain was admitted in the Obstetrics and Gynaecology department was found to have a blood pressure of 162/108. She was an unbooked case with no previous visits and no other medical records. A proper history was obtained from the obstetrical point of view. Her height was 160 cm, weight 57 kgs and a BMI of 23. Emergency urine and blood routine was sent, with additional

Correspondence to: Arun Muthukumar, Department of Anaesthesia and Critical Care, Calcutta National Medical College and Hospital, Kolkata, West Bengal, India, Tel: 919445544089; E-mail: arunmuthukumar27@gmail.com

Received date: September 03, 2020; **Accepted date:** September 18, 2020; **Published date:** September 25, 2020

Citation: Muthukumar A (2020) Pre-eclampsia in Unbooked Covid-19: A Review of Anaesthetic Considerations and Inference. J Surg Anesth. 4:134.

Copyright: © 2020 Muthukumar A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

investigations like serology for HIV1 and 2, HBSAG, HCV. A bed site clotting time and bleeding time were found to be in normal range. Hb was 10.9 g/dl, Total Leucocyte Count was 7650 cells/mm³, Platelet was 1,45,000/mm³. Prothrombin Time was 13 and International Normalized Ratio (INR) was 1.1 and her urine dipstick showed 3+ albumin. No history of any illness like diabetes, hypertension, jaundice, asthma. Blood sugar was 88mg/dl. Being an un booked case she was diagnosed as a case of severe pre-eclampsia and started on Magnesium Sulphate (MgSO₄) and labetalol. MgSO₄ initially 4gm of 20% Intravenously over 3-4 minutes and then followed by 1 gm/hr infusion. The signs denoting MgSO₄ toxicity, respiratory rate, urine output, deep tendon reflexes were monitored continuously. Inj. Labetalol was given as 10 mg IV. The Biophysical Profile (BPP) score was 7 and foetal movements were noticed by both clinical as well as Ultrasound examination, with reassuring Cardiotocograph. Once the BP came down to 146/98 mmHg, she was planned for an emergency lower section caesarean section under sub arachnoid block, after a conservative management for 6.5 hours. Urine output was 1.5 ml/hr from admission to surgery.

A routine emergency pre anaesthetic checkup was done and evaluated. Patient was alert, conscious, oriented, found to have mild irritability and epigastric pain. Pallor was noticed and required blood and FFPs and Platelet products were reserved as a precaution. MP grade 2 and ASA class 3 with fasting status of >6hrs. Heart rate was 103/min, BP 140/96 mmHg, SpO₂ reading as 99% in RA, with a normal sinus tachycardia in ECG. Two large bore Intravenous (IV) cannulas were established, one in each hand. No significant findings in Cardiovascular Respiratory systems with GCS score of 15, with mild tenderness to palpation in the abdomen. Temperature was 100 degree F (oral), no previous history of any contact with COVID-19 patients according to the patient relatives. Being an un booked case without proper antenatal care, after obtaining the required consent from the patient as well as her husband after explaining the process of anaesthesia, surgery and complications anticipated, the case was taken to the septic operation theatre (OT), which has been currently reserved for the emergency surgeries of COVID-19 patients. Since not much time was available, a nasopharyngeal swab sample was sent for RTPCR to test COVID-19 before the surgery [5,6].

The patient was made to wear a N95 mask, and was loaded with 10 ml/kg of Ringer lactate (RL) solution and then shifted to the OT. The OT has a small area for doffing and donning before entrance. The OT has a Boyles apparatus in a proper working condition with proper fitted Type E and H cylinders, devoid of central supply. Level 3 Personal Protective Equipments (PPEs) with a tight fitted N95 mask with respirators were used by the Anaesthetist, a helping staff and the two surgeons with an OT sister inside the room, and a helper outside the OT. The machine was given a routine check and cylinders were checked for proper function and leaks. And the required table preparation was done i.e., the required laryngoscope handle and proper functioning Macintosh blades of size 3 and 4, emergency drugs of atropine, adrenaline and hydrocortisone. Only one anaesthetist with a helping staff were involved in the whole process of administering

neuraxial block [7]. Under proper aseptic precautions and positioning of the patient in sitting position, 2 ml of Heavy bupivacaine 5%, with 10 ug of fentanyl were given as Spinal Anaesthesia was performed with 25G Quincke pointed needle after demonstrating proper cerebrospinal fluid (CSF) flow in the L3-L4 space. After 3 minutes level of sensory block was noted to be till T4 and Bromage scale assessment gave complete motor block. The routine monitoring of BP, pulse oximeter SpO₂, HR and Electrocardiogram were monitored throughout the surgery. There was no such incident of intraoperative hypotension and no drugs were administered unnecessarily, except Inj. Ondansetron of 4 mg, and Inf oxytocin 15IU in IV drip in the 2nd and 3rd bottles. A healthy newborn male baby weighing 2.75 kg was born with an APGAR of 9, 9 at 0 and 5 minutes.

Calculated intra operative blood loss was 600-700 ml. Total Intra operative fluid provided was 1300 ml of RL, urine output was measured at the end of the OT to be 580 ml. The surgery went on for 55 minutes. The patient was transferred to asymptomatic containment zone after the surgery. After 19 hours of surgery, the RTPCR report came positive for COVID-19 in the mother. The health care workers involved were sent into isolation for a period of 1 week. The newborn was separated from the mother after initial feed, followed by expressed breast milk from the mother by the nursing staff thereon. Test done after 26 hours of birth came negative. After two days the baby along with the mother was sent to a higher institution for special care, where isolated high risk COVID care was better. Follow up with the 7th and 10th day report came to be negative for the baby, while the mom still remaining asymptomatic till day 28, without any evidence of fever. The COVID test performed on her on days 21 and 28 came negative, she was sent home, with advice of handling the baby with proper hygiene while maintaining self-care and isolation. The Anaesthetists, surgeons and staffs were tested after one week of isolation and declared free of disease.

DISCUSSION

COVID-19 pandemic is continuously on the rise. With the current pathetic situation prevailing, providing proper care becomes difficult. Previously the emergency scenario was entirely different, where cases were considered and treated only for their emergency in order to save the patients. But now it's adding up one more additional burden for any health care worker that is self-protection. The disease not only threatens the patients, but also has an impact on health care workers aiming to save the patients. The amount of aerosol exposure during intubation and extubation, while performing regular pre anaesthetic checkup make the on call anaesthetist susceptible to COVID-19 infection. Unbooked case may be a challenge for the surgeons as well as anaesthetist even under normal circumstances. Doctors handling the specific case won't be aware of the proper antenatal history. Moreover, this adds anxiety to them when spoken about emergency case scenarios like PIH, Antepartum haemorrhage in an un booked case. Many unbooked cases might be COVID asymptomatic carriers as in this case or at times might present with active symptoms. This has a major impact on the anaesthetist, while determining what type of anaesthesia to be given for that specific case.

In such unbooked cases anticipating a COVID report might delay the surgery and may impose a threat to the patient care. The Society of Obstetrics Anaesthesia and Perinatology (SOAP) recommends reduction in performing emergency LSCS cases owing to the current scenario [8]. But the awareness of the people also to be considered, people who are below the poverty line many a times present as a unbooked case. In that case emergency surgery would be demanding, in order to save the patient as well as the baby. An elective LSCS would be much safer in COVID-19 patients than an emergency planned one. But this is definitely not the case in every unbooked patient, in critical cases the emergency LSCS should be done without having a second thought.

Since this patient was clinically as well as hemodynamically stable we had performed a sub arachnoid neuraxial block. In case the patient's respiratory system or hemodynamics were compromised we would have had the only option left, that is General Anaesthesia. Some cases requiring general anaesthesia for conditions like ruptured ectopic, abruptio placenta were also noted, in which case aerosol generation with Endotracheal tube insertion would be comparatively more. Thanks to the neuraxial regional blocks, which at least minimize aerosol exposure to the anaesthetist compared to GA, thereby helping in undiagnosed COVID cases [9,10]. Proper anaesthetic knowledge prevents catastrophe in any case.

Another part of the discussion involves the link between pregnancy induced hypertension in active and asymptomatic COVID patients. There is very minimal evidence regarding this area, but a number of researches are ongoing, to study COVID-19 and its impacts on pregnant mothers. Review of multiple literatures also showed the rare and unusual presentation of severe COVID-19 patients presenting as Pregnancy induced hypertension. Or else, as in our discussed case, an asymptomatic COVID patient may present with preeclampsia. These are to be kept in mind while dealing with any pregnancy related hypertension case in the current scenario [11]. We believe future studies and researches will focus on identifying the relation between COVID-19 and Pre-eclampsia.

CONCLUSION

The case was initially believed to be a regular pre-eclampsia with severe features, and was managed accordingly. Even though the case did not have any significant clinical features suggestive of COVID-19, having the idea of worsening pandemic situation proper precautions helped the Anaesthetist as well as the surgeons stay away from the risk. Similarly not being the only case, there are many cases which require emergency surgery poses the on call anaesthetist as well as other health care workers imminent danger of acquiring infection. In the current scenario, due to the rapidly increasing cases, quickly testing everyone who is in need of emergency is very difficult and cumbersome. That too, being an unbooked case brings more burden to the effective patient care.

We conclude that the proper use of precautionary measures and self-care, in spite of the COVID-19 status of the patients while handling their emergency needs, if considered every case to be

a positive one, it would protect and adequately safeguard many health care workers in the near future. Many doctors are getting succumbed to this infection even with proper safety measures. This can be avoided by employing proper awareness while taking emergency decisions, whatever the COVID status of the patient. From the discussed case, we could infer that unbooked obstetric patients approaching for emergency help, who may or may not have active symptoms of COVID-19, proper precaution halts the spread of disease to the health care workers involved, despite the unknown COVID status.

DISCLAIMER

The detailed consent from the patient regarding the usage of patient details were obtained before presenting their case as a study. The patient as well the patient attenders were also explained in their own language that their details will be concealed and will not be let out owing to the social stigma.

REFERENCES

1. Tahamtan A, Ardebili A. Real-time RT-PCR in COVID-19 detection: Issues affecting the results. *Expert Rev Mol Diagn.* 2020; 20(5): 453-454.
2. Breslin N, Baptiste C, Gyamfi-Bannerman C. COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals. *Am J Obstet Gynecol MFM* 2020; 2(2): 100111.
3. John CO, Alegbeleye JO. Pregnancy outcome in unbooked mothers at a tertiary health institution, South-South, Nigeria. *Niger J Med.* 2016; 25(3): 294-300.
4. Siddiqui MM, Banayan JM, Hofer JE. Pre-eclampsia through the eyes of the obstetrician and anesthesiologist. *Int J Obstet Anesth.* 2019;40:140-148.
5. Xia H, Zhao S, Wu Z, Luo H, Zhou C, Chen X. Emergency caesarean delivery in a patient with confirmed COVID-19 under spinal anaesthesia. *Br J Anaesth.* 2020; 124(5): e216-e218.
6. Yilmaz R, Kiliç F, Arican İ. Anesthetic management for cesarean birth in pregnancy with the novel coronavirus (COVID-19). *J Clin Anesth.* 2020; 66: 109921.
7. Malhotra N, Bajwa SJ, Joshi M, Mehdiratta L, Trikha A. ISA advisory: COVID operation theatre advisory and position statement of Indian society of anaesthesiologists (ISA National). *Indian J Anaesth* 2020; 64: 355-362.
8. Podovei M, Bernstein K, George R, Habib A, Kacmar R, Bateman B, et al. Society for Obstetrics Anaesthesia & Perinatology (SOAP) Interim considerations for obstetric Anaesthesia Care related to COVID-19.
9. Chen R, Zhang Y, Huang L, Cheng BH, Xia ZY, Meng QT. Safety and efficacy of different anaesthetic regimens for parturients with COVID-19 undergoing Caesarean delivery: A case series of 17 patients. *Can J Anaesth* 2020; 67: 655-663.
10. Zhong Q, Liu YY, Luo Q, Zou YF, Jiang HX, Li H, et al. Spinal anaesthesia for patients with coronavirus disease 2019 and possible transmission rates in anaesthetists: Retrospective, single-centre, observational cohort study. *Br J Anaesth* 2020; 124: 670-675.
11. Mendoza M, Garcia-Ruiz I, Maiz N. Pre-eclampsia-like syndrome induced by severe COVID-19: A prospective observational study. *BJOG.* 2020; 10: 16339.