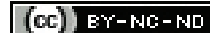


Prenatal Invasive Procedures during Peak of COVID-19 Pandemic

CHANCHAL SINGH¹, GAZALA SHAHNAZ², SEEMA THAKUR³



ABSTRACT

The current Coronavirus Disease-2019 (COVID-19) has had an immense adverse effect on provision of routine healthcare services including maternity care. Prenatal invasive procedures are amongst the most affected due to their availability at limited centres, reallocation of health resources, restricted mobility of individuals and the perceived 'semi-elective' nature of these procedures. However, these are essential procedures, even life-saving in cases of foetal anaemia, and time-sensitive especially considering the upper limit of legal age of medical termination of pregnancy in India. Data on COVID-19 is currently limited and the risk of vertical transmission is unknown. Here the author presents experiences of prenatal invasive procedure during April 2020 and May 2021, the peak months of COVID-19 and stringent lockdown.

Keywords: Coronavirus, High-risk pregnancy, Prenatal diagnosis

INTRODUCTION

The current COVID-19 caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) has been an unprecedented crisis affecting routine healthcare including maternity care. The disease was declared a pandemic by the World Health Organisation (WHO) in March 2020 [1]. The rapid spread of the disease in India prompted state governments to announce a complete 'lockdown' in March end. The lockdown has had a huge impact on availability as well as uptake of prenatal invasive procedures. Availability at limited centers, reallocation of health resources, restricted mobility of women in particular and the perceived 'semi-elective' nature of prenatal invasive procedures has made the impact even worse [2]. However, current guidance underlines that most foetal procedures are time-sensitive and thus should not be regarded as 'elective' [3,4]. This is even more prudent for our country where we are bound by the 20-week upper limit for termination of pregnancy.

As soon as COVID-19 was declared a pandemic, the maternal-foetal unit at our hospital modified its working as per current recommendations [5-8]. Women were encouraged to do tele-consultation or video consultation wherever possible and advised to visit the hospital only when necessary and minimise the number of accompanying attendants. Ultrasounds in foetal medicine unit have been prioritised and restricted to 11-13 weeks and 18-20 weeks in low risk women. Invasive diagnostic procedures were scheduled after a tele-consult ensuring the necessity of the procedure and correct timing in terms of gestation. Women coming to the hospital were screened by using a symptom questionnaire as well as a thermal sensor for fever. They were provided with a three-ply mask and asked to perform hand hygiene at the screening area. Waiting areas adapted to current norms of 'physical distancing'.

Prenatal Diagnostic Procedures during COVID-19

Prenatal diagnostic procedures performed at the centre included amniocentesis and Chorionic Villus Sampling (CVS), both of which were performed as outpatient procedures. Both were done transabdominally under ultrasound guidance and aseptic precautions using 22-gauge and 18-gauge spinal needles respectively to obtain amniotic fluid or chorionic villi which were sent for genetic tests as indicated. Another procedure that was performed in a foetal medicine unit was Multifoetal Pregnancy Reduction (MFPR) in

higher order multiple pregnancies and/or selective reduction. The MFPR is defined as reduction of one or more structurally normal foetus(es) in higher order multiple pregnancy with an aim to improve the perinatal outcome. Selective reduction in a multiple pregnancy is defined as reduction of a foetus with a structural abnormality or a foetus with chromosomal abnormality. Intrauterine Transfusion (IUT) is a therapeutic prenatal invasive procedure in which cross-matched, O negative, irradiated, haemoconcentrated blood is given to an anaemic foetus by accessing its umbilical vein using 20-gauge spinal needle under ultrasound guidance. The most common cause of foetal anaemia is Rh isoimmunisation. All these invasive procedures carry a risk of miscarriage which ranges from 1 in 100 to 1 in 1000 for diagnostic procedures and 5-7% for MFPR/selective reduction [9,10].

Currently, there is no evidence of vertical transmission of COVID-19 although there remains a theoretical risk in COVID-19 positive women [3,8]. However, routine COVID-19 testing prior to invasive procedure was not performed in accordance with current guidelines which do not recommend routine testing in asymptomatic women and/or women at low risk of COVID-19 infection [3,11]. The total number of prenatal invasive procedures performed during the peak months of lockdown, i.e., April and May is given in [Table/Fig-1]. The CVS was offered for single gene disorders, e.g., prenatal diagnosis of beta thalassaemia major, spinal muscular atrophy in carrier couples. The MFPR was scheduled at 11-13 weeks' gestation. Women were offered selective reduction in multiple pregnancy on recognition of a structural abnormality at 11-13 weeks scan. Amniocentesis was performed via transamniotic approach in all cases as recommended [4]. All patients gave informed consent prior to the procedure. The consent included the possibility of the patient acquiring COVID-19 infection from the hospital. The operators wore N95 masks, gown,

Procedure	April 2020	May 2021	Total
Amniocentesis	12	15	27
Chorionic villus sampling	3	4	7
Reduction (Multifoetal and Selective)	6	4	10
Intrauterine Transfusion (IUT)	1	1	2
Total	22	24	46

[Table/Fig-1]: Prenatal invasive procedures performed during the peak of lockdown period.

face-shields and performed all procedures while observing universal precautions for asepsis [12]. The machine, probes and examination bed were cleaned/sanitised as per guidelines before and after all scans and procedures [6].

The two IUTs presented a unique logistic challenge due to requirement of fresh (donated less than 5 days prior to procedure), O negative blood and the limited ability of patients to arrange donors amongst friends and/or family members. Healthcare workers at the hospital went beyond their call of duty and donated blood for both transfusions performed during this period of lockdown. This underlines the uniqueness of our profession, we, as healthcare workers not only face the challenge of stepping out of the safe confines of our homes, we can also be called upon to go beyond our roles as clinicians and be 'caregivers' in the true sense of the word.

There was no procedure related to miscarriage. Both transfusions were performed without any complication. All patients were contacted telephonically two weeks after the procedure to specifically enquire about development of symptoms suggestive of COVID-19. None of them developed any symptoms. Although maternal-foetal unit at hospital also caters to COVID-19 positive women, so far, none has required a prenatal invasive procedure.

CONCLUSION(S)

The authors wish to propose that prenatal invasive procedures are essential services that can be safely performed during this pandemic after appropriate selection of cases. Screening of women by symptom questionnaire, observation of universal precautions of asepsis and rational use of personal protective equipment are essential to optimise resource allocation and minimise horizontal transmission (from patient to healthcare worker and vice versa).

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PARTICULARS OF CONTRIBUTORS:

1. Senior Consultant, Department of Foetal Medicine, Madhukar Rainbow Children's Hospital, Delhi, India.
2. Associate Consultant, Department of Foetal Medicine, Madhukar Rainbow Children's Hospital, Delhi, India.
3. Senior Consultant, Department of Medical Genetics and Foetal Medicine, Madhukar Rainbow Children's Hospital, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Chanchal Singh,
Madhukar Rainbow Children's Hospital, Malviya Nagar, New Delhi-110017, India.
E-mail: chanchalsngh@gmail.com

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