

# A Case Study on Multisystem Inflammatory Syndrome in Children-Nurse Prespective

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**Abstract:** *The following disease condition was a complicated case as this is a new case to discover and the mother had already lost her baby and this baby was precious to the family and by the extreme care and continuous support of the team for fifteen consecutive days with higher group of antibiotics usage and with strict infection control practices and the baby became alright and the nursing management was covered well hence the outcome was better and baby was discharged.*

**Keywords:** MISN-Multisystem inflammatory syndrome in neonates, **Fatal**-leading to failure, **Irritable cry**-increased sensitivity to stimuli, **Tachycardia**-an abnormally rapid heart rate, **Dysuria**-Painful urination.

## 1. Introduction

Multisystem inflammatory syndrome in children (MIS-C) is a fatal condition where different body parts became inflamed the heart, lungs, kidneys, brain, skin, eyes or gastrointestinal organs. MIS-C has many symptoms, which affects multiple organs and systems in the body. Many children have multiple indications approaching toxic shock syndrome, in which the coronary arteries enlarge or form aneurysms. The cause of MISN is still idiopathic and rigorous research is still in progress. However, it is known that many children with MIS-C had the virus that causes COVID-19, or had been around individual with COVID-19. MIS-C can be grave, even lethal, but most children who were diagnosed with this condition have gotten better with immediate medical attention.



## 2. Case Presentation

Baby of Mrs. XXX was 16 days old and she delivered a baby boy after struggling for a period of six to seven years. Previously she had G3P2L1A1, hence she was worried and bearing a baby was gradually becoming an issue in her life. As to become pregnant, it was a difficult she was worried and was tensed. She was mentally unstable and after certain investigations, it was seen that she developed Pregnancy Induced Hypertension (PIH) and started taking medications for it. Everything seems normal but her family took utmost care of her that she can continue her pregnancy with ease. However, she was overjoyed after baby delivery but after 14 days of baby delivery the baby started to develop irritable cry, it prolonged for a long time and slowly was unable to take feeds, and slowly he developed breathing difficulty. Immediately they visited to the nearby hospital but they were not satisfied with the treatment thence they brought to

our hospital for further treatment to continue. After certain enquiry, it was known that mother suffered from COVID during her sixth month of pregnancy. Hence on the day of admission baby presented to hospital with symptoms like Respiratory distress Grunting, Cyanosis and Maintaining decrease saturation level (86%-90%). Severe respiratory distress like grunting, diarrhea, bluish discoloration of lips and limbs Swallowing difficulty, dehydration, cyanosis, tachycardia and Dysuria.

### Nursing Management



- On immediate basis the treatment started and Initially baby was put in **IPPV (Intermittent Positive Pressure Ventilation)** mode and soon shifted to **CMV (Continuous Mechanical Ventilation)** mode and the nurses connected the baby with the ventilator support and changed the mode as per the baby's requirement and doctor's instruction.
- The Chest X-ray revealed Bilateral patchy & haziness in both the lung filled hence nebulisation started for the baby. Antibiotics like (**Meropenem** and **Gentamycin**), were started after sending full sepsis screening and then was upgraded to (**Tecoplanin** and **Colistin**) according to the blood culture sensitivity where nurses administered the drug in sterile technique and was well documented.
- ABG showed mixed respiratory and metabolic acidosis hence the baby was changed from CMV mode to **HFO (High Flow Oxygen)** level and the saturation level was monitored continuously.
- As the baby was in shock on admission, hence Inotropes infusions were given immediately.
- Furosemide infusion started as 2D echo showed severe LV dysfunction with dilated LA and LV.

Volume 11 Issue 4, April 2022

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- COVID antibody was reported positive (titre 6.48). Cardiac markers (NT pro-BNP and TROP-I) were also found elevated.

### 3. Diagnostic Evaluation

- D-dimer and Serum Ferritin were also deranged, LFT and Clotting parameters were also grossly deranged hence FFP was transfused as required to correct the parameters and Inotropes were gradually tapered and stopped.
- Repeat cardiac markers were done (Trop-I and NT Pro BNP) and found to be within normal range. IV immunoglobulin and Methylprednisolone was given.
- Low molecular weight heparin was also started subcutaneously. The baby improved clinically with decrease ventilator requirement [from HFO (High Flow Oxygen) to C-PAP (Continuous Positive Airway Pressure) ] mode and cardiac function also improved as evidenced by repeated 2D Echo. According to the ABG the baby's saturation was well maintained and X-ray revealed reduction of the patches. Initially baby was on IV fluids and Nil by mouth.
- OG feeding was started following extubation and gradually increased according to baby's tolerance.
- Later on baby was on full oral feeds with breast feeding. Baby's bilirubin level was elevated so initially baby was given double surface phototherapy. Repeat Bilirubin was done after 2 days and found normal hence double surface phototherapy was stopped.



### Prognosis

Initially the prognosis of the disease was poor and with little hope the baby was treated in ICU but the parents almost lost their hope however were patient enough and trusted the team of doctor and nurses. Her family members were counselled as well for their poor outcome. Her father was in tears but prayed for speedy recovery.



### Course of Stay

- After 14 days of stay the baby was haemodynamically and clinically stable maintained saturation in room air and was on full oral feed so was planned for discharge on day-29 of life.
- Mother was counselled and explained about the health condition and discharge advice of the baby. The parents were mentally prepared to take the baby home and mother was confident about the feeding.

- Parents were assured for the follow up. Her weight, abdominal girth was measured in daily basis. Weekly once head circumference was checked. To prevent pressure ulcer hourly position change was initiated.
- To prepare TPN we used laminar flow and for transfusion purpose we used lectrocath to prevent light to bypass and used central line instead of peripheral line. RBS monitoring was done daily to rule out hypoglycaemia.
- Daily sponging was done to maintain personal hygiene. Eye pad was used to prevent exposure keratitis as patient was in ventilator. Vitals sign were closely monitored BP and heart rate as the baby was hypertensive.
- Restricted Intake Output chart was maintained due to Furosemide and FFP transfusion & to prevent electrolyte imbalance as the patient was in steroid. Closed suctioning was initiated to prevent further infection to the baby.
- For the normal expansion and relaxation of the lungs chest physiotherapy and nebulization was also initiated. Closed monitoring for seizure was also observed.

### 4. Discussion

As we all know, that pandemic period is not over people should not ignore the sign and symptoms even if it is mild they should definitely consult with physicians immediately rather than taking pills from pharmacy, If any of the family members has suffered from COVID then they must consult with doctors on immediate basis and take appropriate steps. as COVID vaccination has already been initiated by the GOVERNMENT OF INDIA, hence age group of 12-18 years must get vaccinated. it's important that the guidelines set by the government must be followed appropriately. While comparing the book and patient picture there were various symptoms like Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected individual must go for testing and avail treatment at the earliest so that the casualties can be avoided.

### 5. Conclusion

Hence it was a challenging case for each one of the team to help survive the baby. The baby was precious as after so much of painful days Ms. Rojalin was able to bear the baby. At the outset, it was seen that with great team work and immense safety precautions the baby was alright and was shifted to the mother side.

### 6. Parent's Feedback



With great hope and belief, they came to our hospital for their baby girl to become alright and they were in great pain as their only daughter was suffering. With a collapsing stich of physique the family held their hopes high on to Apollo

Hospitals, with great care and support the hospital also kept their hopes intact and took care of the baby and she became much happy and thankful to all doctors and nurses that as their never ending support and continuous care only helped their baby to bring back to them. It was a joyful moment for them as well as for the hospital. The team also rejoiced the recovery and a cake cutting ceremony was arranged for the victory celebration and made it a WOW moment.

### **Ethical Consideration**

With the prior permission of the baby's parents and after the informed consent, the case study was ready for the presentation.

### **Acknowledgement**

We were delighted that after so much of difficulties we could resolve the issue. The baby became all right and we could see a happy smile. They were also thankful to the Apollo family.

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