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Case Report

The triumphant battle of a healthcare worker's family against COVID-19

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ABSTRACT

Pandemics are well-established outbreaks of infectious disease which can increase mortality and morbidity and have a great impact on economic, social and political facet. They wipe out major portions of a nation's procurements in these aspects. Health-care workers who are at the forefront in the anti-pandemic war are significantly affected and their family is also not spared. We present a case of a family comprising of a doctor couple with their ten-year old daughter and their joint fight against COVID-19 as they all got infected by this virus at the same time.

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1. Introduction

Pandemics can cause important widespread increase in morbidity and mortality, economic damages, individual behavioural changes and political and social disturbances.¹ COVID-19 pandemic started in China but due to its grandiose, swamped the entire globe in the most cruel manner. Since its arrival in India, Health Care Workers (HCWs) are catering round the clock to patients to protect and treat the affected and at risk inspite of putting their own lives at stake.² We put forth one such case of a Mumbai based HCW's family. It comprises of an adult male doctor who is a consulting physician (M.D., internal medicine) and a husband of an adult female doctor who is a medical microbiologist (M.B.B. S, M. D, microbiology). They are parents to a ten-year old daughter. Their both set of parents reside separately in Mumbai and all four are above 70 years in age with co-morbidities. In this family of three, all got infected with COVID-19 at the same time and pursued their anti-corona battle successfully.

2. Case Report

A 43-year old male doctor, non-alcoholic, non-smoker without co-morbidities developed cough which lasted for two days. He is a consulting physician by profession and caters to patients for all types of medical ailments. One of the patients was under his care in a tertiary care hospital that caters to both, COVID-19 positive as well as negative patients. On day three he developed fever (102⁰F). As soon as he was found to be febrile, he isolated himself in the master bedroom of their house. His wife stopped using the bathroom of master bedroom and used the common washroom of the living room instead. The daughter was also asked to restrict herself to her own room. His blood investigations were done which comprised of Complete Blood Count (CBC), Erythrocyte Sedimentation Rate (ESR), Creatinine, Liver Function Tests (LFT), blood for malarial parasite, HbA1C, random blood sugar, C-Reactive Protein (CRP), Lactate dehydrogenase (LDH), Serum ferritin, Prolactin and D-dimer. His nasopharyngeal swab was sent for detection of COVID-19 by Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR). All his blood investigations were normal and swab was positive for COVID-19. He started taking anti-pyretics, favipiravir 1800 mg twice a day for first day then 800 mg twice a day

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for 5 days, cefixime 200 mg twice a day for five days and ivermectin 12 mg once a day for three days along with continuous oxygen saturation monitoring and supportive treatment like warm water, zinc tablets, vitamin C and steam inhalation. He was asymptomatic there-after. On day six his High Resolution -Computerised Tomography Scan (HR-CT) of chest was done which did not show any involvement of lungs. He remained asymptomatic till Fourteenth days. His SARS-COV-2 antibody titres on 25th day was 49. The 41- year old female doctor without vices and co-morbidities works as a part time microbiologist in a hospital that currently does not test samples for COVID-19. She started complaining of throat pain and body-ache from next day after her husband was detected COVID-19 positive. She isolated her self in the living room of the house and again started using the washroom of master bedroom. Next day morning she complained of one episode of fever with chills and body-ache. She was started on anti-pyretics, favipiravir 1800 mg twice a day for first day then 800 mg twice a day for 5 days, cefixime 200 mg twice a day for five days and mg once a day for three days along with continuous oxygen saturation monitoring and same supportive treatment as the husband. She immediately sanitised the child's room with 70% alcohol and cleaned the toilet that she shared with her daughter. The child was strictly asked to be restricted to her room and follow strict hand washing. On day three, her blood investigations, same as that of her husband were sent. Her haemoglobin was 7.5 gms/dl, Neutrophil:lymphocyte ratio was 71% : 21%, CRP was 14 mg/L and D-dimer was 624 ng/ml. Aspirin 75 mg once daily was added to her treatment regime. Her HRCT severity score was 2/25 on day 4 and CORADS level 2. She continued to remain symptomatic with body-ache as her main complaint. Oxygen saturation monitoring was strictly done which remained normal. On day seven, her same blood investigations were repeated which showed CRP to be 45mg/L and rest including D-dimer were normal. She was started on dexamethasone 6 mg once a day for 10 days. Her symptoms improved eventually and no new symptoms developed and 14 days of isolation were completed. After 25 days her SARS-COV-2 antibody titres were 69. The child also developed symptoms the same day as the mother and complained of body-ache, excessive sneezing, throat pain, nasal irritation and increased body temperature (99⁰F). She was given antipyretics and syrup azithromycin 300 mg once a day for three days along with supportive treatment. Fourth day onwards she became asymptomatic and remained so till day 14 of isolation. Her SARS-COV-2 antibody titres on 25th day were 116. Till the time the wife was detected positive cooking and supportive help for all three was looked upon by her and she did this using double pair of gloves, N-95 mask, face shield and full-body cover. After her positive status was confirmed, the meals were ordered from a home-based tiffin-service supplier.

3. Discussion

SARS-COV-2 infection can be confirmed early using RT-PCR based viral RNA detection which is also a sensitive test and is also the government's latest policy.^{3,4} Hence the husband's test was done immediately when he developed fever. Timely and accurate treatment was started as per his advice as per the latest guidelines for all members.⁵ A confirmed case of COV-2 and its contacts should remain in isolation for 14 days as per government's latest policy.⁶ This was followed by all family members, two of which were confirmed cases and the third one in contact with the two cases. Surface cleaning with 70% alcohol is effective against SARS-COV-2.⁷ Hence the same norm was followed for disinfection of child's room. IgG antibodies to COVID-19 appear on around 19th day and IgM appear at around 23rd day post-symptom onset.³ Hence all members got their titres done on 25th day after symptom onset. The heart-wrenching truth about this incidence was that the family did not acquire the infection while having fun and frolic like parties and gatherings but while the husband was battling to save a life that was dangling between life and death in a tertiary care hospital. The patient to whom he was attending was negative for COVID-19. But that tertiary care institute where the patient was admitted caters to COVID-19 positive as well as negative patients. Hence, inspite of the doctor being in full protective gear, the slightest breach in asepsis and disinfection after a previous COVID-19 positive patient could have led to the mishap. The patient under the physician's care was in the Intensive Care Unit (ICU) of that institute for a week and thereafter in the ward for two days. Later, she was shifted to another small nursing home where she was kept for a week in the ward. Counting from day one of the husband's symptoms and keeping in mind an average incubation period of five to seven days,⁸ most probably the infection was acquired by him from the tertiary care institute's ICU or ward. The other two family members probably got the infection from him as the of exposure the wife had to COVID-19 from her work-place was much less as she works as a part timer in a hospital which currently does not test samples for COVID-19. But one bright aspect of this incidence was that in the first four days after the husband was detected positive, the wife was capable of physically managing the meals and other supportive work for all members. But once the wife was detected positive, she was into complete rest. By that time it was a week since the husband's symptom first appeared. Besides, he was absolutely asymptomatic after that one and only fever spike on his day three. On an emotional front, it was heart-breaking for parents to see their daughter suffer for no fault of hers and they had to stay away from her for two weeks. Nevertheless, three lives of the family members got saved in return for saving one life by the husband.

4. Conclusion

Despite of all the hazards and toil on their own health due to COVID-19, HCWs are putting their best foot forward to save lives. Their family stands rock-steady by their side always. Hence, HCWs have emerged to be one of the true warriors of this COVID-19 misfortune.

5. Conflicts of interest

All contributing authors declare no conflicts of interest.

6. Source of Funding

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