



Severe Acute Respiratory Infection: A Case Report

Julie Vanlalsawmi^{1*}, Mayur Wanjari¹, Sagar Alwadkar¹ and Deeplata Mendhe¹

¹Department of Community Health Nursing, Smt. Radhikabai Meghe Memorial College of Nursing,
Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Introduction: Severe Acute Respiratory Infection (SARI) is a disease of the respiratory system. It is a symptomatic disease with different types of causative agent, and whose definite treatment and cure depends on the type of pathogens, nature of onset, severity of symptoms and the host factors [1]. SARI is one of the major leading cause of disease among children and person with suppressed immunity. The National Health Profile 2019 recorded 41,996,260 cases and 3,740 deaths from Severe Acute Respiratory Infection (SARI) across India in 2018. In 2017, acute respiratory infections accounted for 69% of the total cases of communicable diseases and caused 23% of such death. There were as many as 40,810,524 and 3,164 deaths from such infections. Males and females are affected equally [2].

Case Presentation: A female patient of 72 years from Bodhadi, Kinwat, Nanded was admitted to Medicine Intensive Care Unit (MICU), Acharya Vinoba Bhave Rural Hospital on 26th March 2021 with a chief complaint of breathlessness on exertion for 4 days high grade fever for 15 days prior to the date of admission. My patient is a known case of Hypertension and Typhoid and had undergone Left Nephrectomy.

Keywords: *Severe acute respiratory infection; breathlessness; high grade fever; hypertension; typhoid; nephrectomy.*

*Corresponding author: E-mail: juliehermanos0@gmail.com;

1. INTRODUCTION

Severe Acute Respiratory Infection (SARI) is a disease of the respiratory system. SARI is one of the major leading cause of disease among children and person with suppressed immunity. The potential viral pathogens of ARIs include seasonal A and B influenza viruses, the new influenza A (H1N1) pdm09 virus strain, human metapneumovirus (HMPV), human rhinovirus (HRV), human adenovirus (HAdV), human parainfluenza viruses (HPIV), respiratory syncytial virus (RSV), human bocavirus (HBoV), human coronaviruses (HCoVs) and enterovirus (EV). SARI case can be defined as "An acute respiratory infection with history of fever or measured fever of $\geq 38\text{ C}^\circ$ and cough with onset within the last 10 days and requires hospitalization [3-4].

The definitive risk factors of Severe Acute Respiratory Infection (SARI) include malnutrition, non-exclusive breastfeeding, lack of measles immunization, exposure to air pollution, low birth weight and excessive exposure to crowded environment [5].

When the potential pathogens enter the respiratory track, they embedded themselves in the epithelial cells of the respiratory and diffuse to the alveoli and damage the alveolar walls. Meanwhile, the other organs and cells are infected at the course of illness like Mucosal cell of intestine, Tubular epithelial cells of kidney, Neurons of brain, several types of immune cells and Certain organs may suffer from indirect injury. This leads to consolidation of the lungs and shows several respiratory system infection symptoms which is classified as Severe Acute Respiratory Infection. (SARI) [6-7].

The associated clinical syndromes of SARI include Mild pneumonia, Severe pneumonia, Acute Respiratory Distress Syndrome, Sepsis and Septic Shock [8].

2. CASE HISTORY

2.1 Patient Information

A female patient of 72years was admitted to Medicine Intensive Care Unit (MICU), Acharya Vinoba Bhave Rural Hospital on 26th March 2021 with a chief complaint of breathlessness on exertion for 4 days high grade fever for 15 days prior to the date of admission.

2.2 Present Medical History

A female patient of 72years was admitted to Medicine Intensive Care Unit (MICU), Acharya Vinoba Bhave Rural Hospital on 26th March 2021 with a known case of Hypertension and Typhoid and is currently on medication. Patient is having a chief complaint of breathlessness on exertion for 4 days high grade fever for 15 days prior to the date of admission.

2.3 Past Medical/ Surgical History

My patient was diagnosed with Hypertension 2009 and is on medication till date. Also, she had undergone Left Nephrectomy in 2010 due to benign renal tumor. Typhoid was also detected on 20th March 2021 and was on medication till the date of admission to Acharya Vinoba Bhave Rural Hospital.

2.4 Family History

There are 3 members in the family, my patient, his wife and his son. The other family members do not have any communicable or hereditary disease except for the patient herself having hypertension in the last 11 years back. The type of marriage of the patient parents and she herself and her husband is non-consanguineous marriage. The other family members are healthy.

2.5 Diagnostic Assessment

Blood study shows: Haemoglobin-11.2 gm%, MCHC (mean corpuscular hemoglobin concentration) - 31.2 g/dL, MCV (mean corpuscular volume) - 64.4 cubic m, MCH (mean corpuscular haemoglobin) - 20.1 Pico gm, Lymphocytes – 10 mCL, Granulocytes – 85%
Urine study shows: Pus Cells - 5-6 cells/ hpf
Kidney function test shows: Urea - 36 mg/dL, Creatinine - 1.3 mg/dl, Sodium - 138 mEq/ L
RT-PCR Test negative through nasal swab/ oropharyngeal swab
High Resolution Computed Tomography (HRCT) Thorax Scan shows lung consolidation which is suggestive of pneumonia.

2.6 Management

Medical management: Patient was treated with Injection Ceftriaxone 1gram BD, Injection Pantoprazole 40mg OD, Injection Dexamethasone 6mg OD, Injection Levofloxacin 500mg OD, Injection Ondansetron 4mg TDS,

Capsule Doxycycline 100mg OD, Tablet Vitamin C 500mg OD, Tablet Zinc 50mg OD and oxygen was administered at 4l/hour till my last day of care.

Nursing Management: Observed for cardiac rhythm, monitor vital signs closely. Keep patient safe from falls at risk of weakness. Teach patient about different breathing techniques and monitor for the effectiveness of different treatment regime given. Provide pain management. Assessment of complications of CCF like arrhythmia, kidney damage, heart valve and rhythm problem and liver damage. Give health Education to patient and family members.

Preventive Management: Interventions were done in order to prevent certain complications like Reducing incidence of venous thromboembolism, Reducing incidence of catheter related bloodstream infection, Reducing incidence of pressure ulcers, Reducing incidence of stress ulcers and gastrointestinal bleeding and Reducing incidence of ICU-related weakness.

3. DISCUSSION

A female patient of 72years was admitted to Medicine Intensive Care Unit (MICU), Acharya Vinoba Bhave Rural Hospital on 26th March 2021 with a known case of Hypertension and Typhoid and is currently on medication. Patient is having a chief complaint of breathlessness on exertion for 4 days high grade fever for 15 days prior to the date of admission. She was diagnosed with Severe Acute Respiratory Infection (SARI) after admission at Acharya Vinoba Bhave Rural Hospital.

A study on, "Severe Acute Respiratory Infection (SARI) surveillance for hospitalized patients in Northern Vietnam" was done to identify viral pathogens responsible for SARI in northern Vietnam during the year 2011 to 2014. Throat swabs and tracheal aspirates were collected from SARI patients according to WHO Guidelines by using conventional/ real-time RT-PCR. Thirteen different pathogens were tested and the result shows that 32.1% showed evidence of infection with influenza viruses among the 975 samples. Other respiratory pathogens were detected in 101samples among which the causative agents were found to be like Rhinovirus, Adenovirus, hMPV, Parainfluenza and RSV. This conclude that Respiratory viral infection, particularly Influenza and Rhino viruses were associated with high rates of SARI hospitalized [9].

A study on "Severe Acute Respiratory Infection (SARI) sentinel surveillance in the country of Georgia" was done in which data collection was conducted by selecting SARI cases using Nasopharyngeal swabs between September 2015 and March 2017 at five high prevalence area. The study showed that 1624 samples were tested SARI positive among which the maximum SARI case was detected within the month of February. The primary cause of SARI was found to be Influenza virus during the month of December to February and respiratory syncytial virus within the month of March to May and Rhinovirus was found to be the dominant pathogen during the month of June to November. Vaccinated individuals were found to be less affected by Influenza virus and hence showed to develop minimal symptoms or require fewer hospitalization. The overall findings implies that SARI case can be prevented to a certain measures and primary preventive measures can be back up and promoted to certain extent in order to reduce the case and deduct the symptoms of SARI disease [10].

4. CONCLUSION

Severe Acute Respiratory Infection (SARI) is a disease of the respiratory system. The risk factors of Severe Acute Respiratory Infection (SARI) include malnutrition, non-exclusive breastfeeding, lack of measles immunization, exposure to air pollution, low birth weight and excessive exposure to crowded environment. If it is treated and diagnosed early, it can be controlled and the patient could live a normal life and practice the daily activities of living without much interruption. My patient does not have very much profound improvement after admission but her typhi dot test was negative after three days of admission and the treatment was still going on till my last date of care.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline Patient's consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Available: <https://ncdc.gov.in/WriteReadData/1892s/96997299691580715786.pdf>
2. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5433280/>
3. World Health Organization. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: interim guidance, 13 March 2020. World Health Organization; 2020.
4. Available: <https://professionals.wrha.mb.ca/old/extranet/ipc/files/manuals/acutecare/Rev1602-07.pdf>
5. Klink T, Rankin DA, Piya B, Spieker AJ, Faouri S, Shehabi A, Williams JV, Khuri-Bulos N, Halasa NB. Evaluating the diagnostic accuracy of the WHO Severe Acute Respiratory Infection (SARI) criteria in Middle Eastern children under two years over three respiratory seasons. *PloS one*. 2020;15(4):e0232188.
6. World Health Organization. Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected: interim guidance. In: *Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected: Interim guidance*. 2020;21-21.
7. Gupta N, Praharaj I, Bhatnagar T, Thangaraj JW, Giri S, Chauhan H, Kulkarni S, Murhekar M, Singh S, Gangakhedkar RR, Bhargava B. Severe acute respiratory illness surveillance for coronavirus disease 2019, India, 2020. *The Indian Journal of Medical Research*. 2020;151(2-3):236.
8. Available: <https://www.mayoclinic.org/diseases-conditions/sars/symptoms-causes/syc-20351765>
9. Le Nguyen HK, Nguyen SV, Nguyen AP, Hoang PM, Le TT, Nguyen TC, Hoang HT, Vuong CD, Le QM. Severe Acute Respiratory Infection (SARI) surveillance for hospitalized patients in Northern Vietnam, 2011-2014. *Japanese journal of infectious diseases*. 2017;JJID-2016.
10. Chakhunashvili G, Wagner AL, Power LE, Janusz CB, Machabishvili A, Karseladze I, Tarkhan-Mouravi O, Zakhshvili K, Imnadze P, Gray GC, Anderson B. Severe Acute Respiratory Infection (SARI) sentinel surveillance in the country of Georgia, 2015-2017. *Plos one*. 2018;13(7):e0201497.

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