

A Case Report on Management of Severe Acute Respiratory Infection (SARI) with Pericardial Effusion in a case with Hypothyroidism, Hypertension and Type-2 Diabetes Mellitus.

1] Ms. Bhagyashree Ganeshpure*, 2] Shital Telrandhe 3] S. V. Rathkanthiwar

1 Nursing Tutor, Florence nightingale Training College Of Nursing, Sawangi (M), Wardha, India. Email: bhagyashree1706@gmail.com

2 Research Consultant, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

3 Dept. of Electronics Engineering, Yeshwantrao Chavan College of Engineering, Nagpur. Email: svr_1967@yahoo.com

ABSTRACT:

Background: Severe Acute Respiratory Infections is acute respiratory infection with fever, cough, shortness of breath, or difficulty in breathing requiring admission to hospital. Hypothyroidism is a most common cause of pericardial effusion & it can also cause cardiac tamponade in severe cases.

Patient Information: A 68 year old women registered to the EMD with history of chest pain and weakness for 3 days, she was known case of Hypertension and Hypothyroidism from last 3 years and Diabetes Mellitus (DM) Type 2 since 25 years, on medication.

Diagnosis: After all general, physical examination and investigation done and she has diagnosed a Severe Acute Respiratory Infections With Pericardial Effusion.

Therapeutic Management and Outcomes: Inj. Insulin R, inj. Levoflox 50mg OD ,inj. Meropenem 1gm TDS, Inj. Doxy 10mg BD, Inj. Lasix 20mg BD, tab. Thyrox 75mg OD, tab. Ecosprin AV 75/20 HS, Tab. Thyrox 75 Mg Od, Tab. Telma H Od, Tab Dolo 650 Mg Stat, Syp. Kesol 2 tsp Tds, Tab. Metornol 25 Mg bd, Vitamin D3 60000 IU Once A Week, vitamin c & Zinc supplement was given. All the treatment was taken and she recovered slowly from symptoms.

Conclusion: In this case, a patient has a severe acute respiratory infection in a pericardial effusion with hypertension, hypothyroidism, and DM type 2 and after taking treatment patient symptom was slowly resolve.

Keywords: Severe Acute Respiratory Infection, Pericardial effusion, Hypothyroidism, Diabetes Mellitus Type 2, Hypertension.

Introduction:

Severe acute respiratory infections (SARI) are defined by the World Health Organization as anyone who has an acute respiratory infection with symptoms such as cough and fever (for at least 10 days) and require hospitalization.¹

In most cases, Pericarditis is an inflammation of the pericardium, a sac-like membrane that surrounds the heart. More fluid is produced when it becomes inflamed and that leads to pericardial effusion. One of the most common causes of inflammation and pericardial effusions is viral infections.² The pericardial sac contains up to 50 milliliter of serous fluid in a healthy person.^{3,4}

Hypothyroidism is an endocrine condition in which the thyroid does not produce and release enough functional thyroid hormone into the bloodstream. It is diagnosed when thyroid hormone levels are low

and thyroid-stimulating hormone secretion is high.⁵ the permeability of the pericardial capillaries to albumin is enhanced in hypothyroidism. This increased colloid pressure within the pericardium, resulting in a lower colloid osmotic pressure gradient between the pericardial space and the pericardium, in addition to decreased albumin drainage into the lymphatic system. The pericardial area fills up with fluid as a result of this. The pericardial effusion that results can be asymptomatic or progress to an overt disease.⁶ Hypothyroidism is a clinical disorder commonly diagnosed by the primary health care provider doctors. Dyslipidemia, infertility, hypertension, cognitive impairment, & neuromuscular dysfunction can result from untreated hypothyroidism.⁷

SARIs are one of the most commonest causes of hospitalization and death around the world.⁸ Annually, around 4.2 million deaths have been attributable to severe acute respiratory infection.⁹ According to estimates from 2010, 11 million children under the age of five were hospitalized for SARI in developing countries, with a 2.3 percent case fatality rate, compared to 570 000 cases in developed countries.¹⁰ Hypothyroidism and pericardial effusion affect 3–6% of people in moderate cases, and up to 80% of those with severe hypothyroidism like myxedema.¹¹

Patient information:

A 68 year old female admitted to AVBRH hospital in sari HDU on date 14/05/2021 with a 7 days history of generalized weakness and a day's worth of chest pain. she was known case of Hypertension for the past 3 years for that she was taken Tab. Telma H 5mg OD and DM type2 since 25 years on inj. Human Mixtard (insulin) 5U/17U and Hypothyroidism since 3 years for that she was taken tab. Thyroidism 50 mg OD daily. She took treatment for that in a private hospital. She was living in a home with two active home-isolated COVID-19 cases in the immediate family, and the patient was caring for the infected family members. She maintains good interpersonal relationships with the family members and she has a history of myocardial infarction and hypertension in her family. She looks anxious and depressed. Her bowel and bladder habits were normal, a sleeping pattern was disturbed due to chest pain & not having any bad habits like tobacco chewing.

Physical examination On arrival, she was Afebrile, pulse was 86beat /min, Respiratory rate was 14breath /min and Blood pressure 130/90 MmHg, 97% oxygen saturation. The patient was conscious, cooperative and well oriented to time, place, and person. Hygiene was maintained properly. Her weight was 48kg and her height was 1.47 meters with a body mass index (BMI) of 22.2kg/m². Her neurological and abdominal findings were normal. On physical examination, High jugular venous pressure causes neck vein distention. Diminished heart sounds on auscultation.

Timeline: She was alright 1 week back .then she developed generalized weakness, chest pain .the doctor's advice all investigation is carried out on admission RTPCR was negative, but HRCT score is 5/25. Then she was admitted in sari HDU on 14/05/2021 for further management.

Diagnostic assessment:

Based on patient history, physical and chest examination, Blood investigations were also done hemoglobin 9.3gm decreased, WBC Count 15600cu.mm increased, HCL 36.7, MCHC 36, MCV 80.4, MCH 28.9, total platelet count 0.64, total RBC count 3.67, RBS - glucose plasma random 282mg/dl was increased, Post Meal Blood Sugar was 359mg%, FBS was 178 mg%, TSH 10.9 mIU/L. Increased, T3-0.638ng/ml was decreased, T4 -10.5µg/dl, vitamin D 9.28ng/ml was decreased, Uric Acid 1.8, total protein

was 5.6g/DL is Decreased, albumin 3g/DL is Decreased, HB A1C 11.29 A1C NGSP was increased, lipid profile VLDL was 18 mg/dl was Decreased, LDH was 394 mg/dl is Decreased, urea was 27 mg/dl, creatinine was 0.9 mg/dl, Potassium was 4 mmol/L, Sodium was 134mmol/L, magnesium was 1.5, phosphorus was 2.8, Calcium was 7.7, CKMB 23, C-reactive protein was markedly increased 5.26mg/L, Ferritine 159, urine exam. (Routing) albumin was nil, pus cell & epithelial cell was 1-2 cells/ HPF, sugar +, Coagulation profile – APTT Control was 29.5, APTT patient was 20, prothrombin time –control was 11.9, prothrombin time – patient was 11.4, INR 0.95, ABG test pH was 7.45, the PaO₂ 131 mmHg was increased, the PCO₂ of 17 mmHg was decreased, HRCT Scan of Thorax was done by the radiologist -ILL Defined patchy ground-glass opacities in bilateral lung fields predominantly with the central peribronchial region, altered cardiothoracic ratio 0.75 with pericardial effusion. above features s/o ?pulmonary edema, few peripheral patchy ground-glass opacities noted in bilateral lung fields s/o Atypical viral pneumonia could be the cause of infection, imaging grading is corad-5 with CT severity score -5/25, USG per abdomen report is Grade I fatty liver noted in a present scan. Normal sinus rhythm was seen on the ECG, along with left ventricular enlargement and repolarization abnormalities.

Diagnostic challenging: No challenging during diagnostic evaluation.

Diagnosis: After a physical examination and investigation doctor diagnosed a case of severe acute respiratory infections With Pericardial Effusion in Hypothyroidism with Hypertension with DM type II.

Prognosis: After getting treatment prognosis was satisfactory.

Therapeutic intervention:

Medical management was provided to the patient. The initial care of the patient was with intravenous normal saline, to correct dehydration. Inj .insulin was given to correct hyperglycemia, 4 hourly RBS check, 2-liter oxygen, She also followed the dietician's advice. A dietician has advised 2 white eggs daily, 1320 kcal, high fiber and protein, moderate carbohydrate, restricted fat. Strict input and output chart monitoring, RBS charting 4 hourly monitoring TPR charting 6 hourly, blood pressure monitoring of the patient. She was taken Inj. Insulin R S/S 22U/16U, inj. Levoflox 50mg OD ,inj. Meropenem 1gm TDS, Inj. Doxy 10mg BD, inj. pan 40 mg od, inj. Emset 4mg TDS, Inj. Lasix 20MG BD, tab. Ecosprin AV 75/20 HS, Tab. Thyrox 75 Mg Od , Tab. Limcee BD, Tab. Zinc Od, Tab. Telma H OD, Tab Dolo 650 MG Stat, Syp. Kesol 2tsp TDS, Vitamin D3 60000 IU Once A Week, Inj. Insulin Lantus 14 U HS , Salt Capsule Od ,Tab. Metornol 25 Mg bd.

Discussion:

A case of a 68-year-old female admitted to AVBRH hospital in sari HDU with a complaint of generalized weakness and chest pain. She was known case of history she was known case of DM type II, Hypertension, and Hypothyroidism on medication. Now she came to AVBRH for further treatment. Investigation and physical examination were carried out the patient was diagnosed with severe acute respiratory infection with pericardial effusion for that treatment were taken patient resolve slowly from symptom. Hypothyroidism was diagnosed based on the patient's past thyroid illness history and thyroid function test findings. One of the most common causes of pericardial effusion is metabolic diseases such as hypothyroidism.¹² Thyroid hormone replacement can alleviate the majority of hypothyroidism symptoms.¹³ The high prevalence of pericardial effusion as a result of hypothyroidism, as well as the possible

complications of pericardial effusion, needs early detection and treatment.¹⁴ Studies related to severe respiratory infections¹⁵⁻¹⁷, diabetes¹⁸⁻²⁰ and hypothyroidism²¹ and hypertension²² were reviewed.

Conclusion:

In this case, a patient has a severe acute respiratory infection in a pericardial effusion with hypertension, hypothyroidism, and DM type 2 and after taking treatment patient symptom was slowly resolve.

Informed consent: Before taking this case, information was given to the patients and theirs, and informed consent was obtained from the patient as well as relatives.

Conflict of Interest: No conflict of Interest

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