World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:15, No:11, 2021

Pulmonary Complication of Chronic Liver Disease and the Challenges Identifying and Managing Three Patients

Authors : Aidan Ryan, Nahima Miah, Sahaj Kaur, Imogen Sutherland, Mohamed Saleh

Abstract : Pulmonary symptoms are a common presentation to the emergency department. Due to a lack of understanding of the underlying pathophysiology, chronic liver disease is not often considered a cause of dyspnea. We present three patients who were admitted with significant respiratory distress secondary to hepatopulmonary syndrome, portopulmonary hypertension, and hepatic hydrothorax. The first is a 27-year-old male with a 6-month history of progressive dyspnea. The patient developed a severe type 1 respiratory failure with a PaO_2 of 6.3kPa and was escalated to critical care, where he was managed with non-invasive ventilation to maintain oxygen saturation. He had an agitated saline contrast echocardiogram, which showed the presence of a possible shunt. A CT angiogram revealed significant liver cirrhosis, portal hypertension, and large para esophageal varices. Ultrasound of the abdomen showed coarse liver echo patter and enlarged spleen. Along with these imaging findings, his biochemistry demonstrated impaired synthetic liver function with an elevated international normalized ratio (INR) of 1.4 and hypoalbuminaemia of 28g/L. The patient was then transferred to a tertiary center for further management. Further investigations confirmed a shunt of 56%, and liver biopsy confirmed cirrhosis suggestive of alpha-1-antitripsyin deficiency. The findings were consistent with a diagnosis of hepatopulmonary syndrome, and the patient is awaiting a liver transplant. The second patient is a 56-year-old male with a 12-month history of worsening dyspnoea, jaundice, confusion. His medical history included liver cirrhosis, portal hypertension, and grade 1 oesophageal varices secondary to significant alcohol excess. On admission, he developed a type 1 respiratory failure with PaO_2 of 6.8kPa requiring 10L of oxygen. CT pulmonary angiogram was negative for pulmonary embolism but showed evidence of chronic pulmonary hypertension, liver cirrhosis, and portal hypertension. An echocardiogram revealed a grossly dilated right heart with reduced function, pulmonary and tricuspid regurgitation, and pulmonary artery pressures estimated at 78mmHg. His biochemical markers showed impaired synthetic liver function with an INR of 3.2, albumin of 29g/L, along with raised bilirubin of 148mg/dL. During his long admission, he was managed with diuretics with little improvement. After three weeks, he was diagnosed with portopulmonary hypertension and was commenced on terlipressin. This resulted in successfully weaning off oxygen, and he was discharged home. The third patient is a 61-year-old male who presented to the local ambulatory care unit for therapeutic paracentesis on a background of decompensated liver cirrhosis. On presenting, he complained of a 2-day history of worsening dyspnoea and a productive cough. Chest x-ray showed a large pleural effusion, increasing in size over the previous eight months, and his abdomen was visibly distended with ascitic fluid. Unfortunately, the patient deteriorated, developing a larger effusion along with an increase in oxygen demand, and passed away. Without underlying cardiorespiratory disease, in the presence of a persistent pleural effusion with underlying decompensated cirrhosis, he was diagnosed with hepatic hydrothorax. While each presented with dyspnoea, the cause and underlying pathophysiology differ significantly from case to case. By describing these complications, we hope to improve awareness and aid prompt and accurate diagnosis, vital for improving outcomes.

Keywords : dyspnea, hepatic hydrothorax, hepatopulmonary syndrome, portopulmonary syndrome
Conference Title : ICMCCR 2021 : International Conference on Medical and Clinical Case Reports
Conference Location : Amsterdam, Netherlands
Conference Dates : November 04-05, 2021