Respiratory System and Dengue Infection, least known culprit

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Dengue is an acute febrile disease caused by a virus known as flavivirus. It is a common arboviral infection in humans.[1] Many Dengue fever (DF) cases are self-limiting. It occurs in two forms: Dengue Fever, a milder form of the disease and Dengue hemorrhagic fever (DHF), the most severe form. If untreated, mortality from the complications of DF is as high as 20%.

Dengue is a mosquito-borne infection that has become a major international public health problem.[2] It is now endemic in more than 100 countries and 40% of the world's population is at risk from its complications.

Vascular permeability and coagulation disorders are the hall mark of DF and DHF.

These mechanisms can be used to explain its varied systemic involvement.3 Dengue virus antigen is found in alveolar lining cells of the lung. Increased permeability of the alveolar-capillary membrane results in edema in the alveoli and interstitial spaces which leads to pulmonary dysfunction.[4]

Thoracic manifestations such as pleural effusion, pneumonitis, pulmonary hemorrhage and hemoptysis have been reported in dengue infections.[5] Pulmonary hemorrhage with or without hemoptysis has also been reported in DHF.[6] Dengue shock syndrome is reported to be the third leading cause of ARDS in dengue endemic area.[6]

Pleural effusion, ascites can be consistent with increased vascular permeability, plasma leakage, abnormalities of hemostasis and protein losing shock syndrome.[7] No respiratory manifestations among mild dengue fever cases are reported but they are presented among DHF and DSS by multiple varieties like ARDS, pulmonary hemorrhage and hemoptysis, pneumonitis, unilateral and bilateral pleural effusion. There may be more than one presentation present that leads to increased risk of death.

Lum et al.,[4] Thong[8] and Sen et al. demonstrated that dengue hemorrhagic fever can result in acute respiratory distress syndrome (ARDS). Increased permeability of the alveolar–capillary membrane results in edema in the alveoli and interstitial spaces which leads to pulmonary dysfunction.4 Pulmonary hemorrhage with or without hemoptysis has also been reported in DHF.[6]

Venkata and Krishnan[7] reported that of the 56 patients who underwent the study on fifth to seventh day of fever, 55 had right sided pleural effusion (96.46%), 37 had left sided pleural effusion (66.07%), these findings can be explained by increased vascular permeability, plasma leakage, abnormalities of hemostasis and protein losing shock syndrome.

Bottom line of the scenario is that, the incidence of pulmonary manifestations is high among the complicated cases of dengue fever (DHF & DSS) and can be used as an indicator of serious presentation

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