Lung Disease in Dengue

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Dengue is an important tropical arboviral infection. The lung disease in dengue is limited mentioned. In this short, editorial, lung disease in dengue is summarized, detailed and discussed.

INTRODUCTION

Dengue is an important tropical arboviral infection. It is classified as an important mosquito borne disease. Dengue usually presents as an acute febrile illness with thrombocytopenia and hemorrhagic complication. The classical triad, thrombocytopenia, atypical lymphocytosis and hemococoncentration is the laboratory hallmark of dengue infection[1]. This infection is very common in tropical countries especially for Southeast Asian countries. Thousands of patients visit to the hospital and are hospitalized annually.

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POSSIBLE PATHOPHYSIOLOGY OF LUNG DISEASE IN DENGUE

The pathophysiology of lung disease in dengue is still not conclusive. There are many possible causes of lung disorders among dengue patients. First, thrombocytopenia can directly cause spontaneous bleeding in any organs including to lung in dengue patients[1].
Sharma et al. noted that pulmonary haemorrhage among dengue patients was rare and could present with haemoptysis requiring blood transfusion[1]. Second, the plasma leakage during dengue infection can also be the causes of lung problem in dengue[16]. This process is believed to be a consequence of dengue immunopathology[17]. Third, the superimposed lung infections in dengue patients are also reported[18]. Those pathophysiological processes can be the causes of lung disease in dengue.

### SOME IMPORTANT LUNG DISEASES IN DENGUE

1. **Pulmonary hemorrhage**

   Pulmonary hemorrhage is a severe lung disease in dengue. It is not common but not serious. This can be early detected by lung CT scan[9 – 10]. The pattern is usually diffuse alveolar hemorrhage. In immunocompetent host, dengue must be a differential diagnosis in any cases with problem of diffuse alveolar hemorrhage[11 – 12]. The other differential diagnoses are influenza A (H1N1), leptospirosis, malaria, and Staphylococcus aureus infection[11]. Nevertheless, it should be noted that the combination of dengue and other concurrent tropical infection is also possible to cause pulmonary hemorrhage (such as concurrent dengue and leptospirosis induced pulmonary hemorrhage[23]). The case can be serious and fatal. The management is usually supportive and symptomatic.

2. **Pleural effusion**

   As noted pleural effusion is a sign of severe dengue. Neeraja et al. noted that this problem was accounted for 11% of severe dengue patients[16]. Namvongsa et al. noted that pleural effusion was the sign of dengue hemorrhagic fever and dengue shock[17]. According to the report by Michels et al[16] and Zaki[17], it was noted that the ultrasonography could help early diagnose effusion and could help the physician in charge to plan for management of pending severe clinical features of dengue. To manage the patients, conservative management can be useful in cases with small effusion. However, in cases with large amount of effusion, the intercostal drainage placement is indicated[18]. In some severe case, a more complex complication, hemothorax can be observed[19] and the use of intercostal drainage placement is useful for management. The fluid replacement therapy and balancing of body fluid is required, which can be based on standard guideline for management of any dengue cases[20].

3. **Pneumonia**

   In general dengue does not cause pneumonia. Finding of pneumonia in dengue case is possible and usually implies superimposed bacterial infection. Staphylococcus aureus[20 – 21] and melioidosis[22] are the two common problematic pneumonias that can superimpose dengue infection. To manage the problem, identification of the pathogen and assignment of proper antibiotic is required.

4. **Pulmonary edema**

   Pulmonary edema can also be the problem in dengue. The pathophysiology is the same as the case of pleural effusion. Disturbance of colloid oncotic pressure is believe to be the main cause of the problem[23]. Sometimes, the problem can also be seen in concordant with other dengue systemic problem such as dengue myocarditis[24]. It should also be noted that pulmonary edema can be sometimes iatrogenic. The case of pulmonary edema after platelet transfusion[25] or excessive fluid therapy[26] in dengue patient is the good example. The acute pulmonary edemas in those cases are usually observed in the convalescence phase[26].

5. **Respiratory distress syndrome**

   Respiratory distress syndrome is the most serious lung disease in dengue and this can result in respiratory failure[27]. Sometimes, the problem can also be seen in concordant with other dengue systemic problem such as acute pancreatitis[28] and myocarditis[29]. Ranjit et al. noted that aggressive management was needed and could be helpful in increasing survival[30]. The fluid replacement therapy, balancing of body fluid as well as ventilation management is required[30].

### CONCLUSION

Lung disease is not common among general dengue patients, however, it is common among severe dengue cases or fatal cases. The problem can be various manifested and can lead to death. The practitioner has to recognize on the lung disease among the patient with dengue and proper manage it.

### CONFLICT OF INTERESTS

The author has no conflicts of interest to declare.

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