

Repeated infections of dengue (serotype DENV-2) in lung cells of BALB/c mice lead to severe histopathological consequences

ABSTRACT

To determine the effect of DENV (serotype 2) repeated infections on lung cells is the main goal of this study. From the result, lung histology of control BALB/c mice showed normal alveolar morphology, while vehicle control BALB/c mice highlighted a slight thickening of the alveolar septum. Lung histopathology of BALB/c mice infected twice by DENV-2 showed the presence of hemorrhage, plasma leakage and presence of hemosiderin-laden macrophages (HLMs). Notably, in the lung of BALB/c mice infected four times by DENV-2, we observed thickening and disruption of the alveolar septum, inflammatory cell infiltration, plasma leakage and increased cellularity. Megakaryocyte releasing platelets were also found into the lung alveolus. Overall, our findings showed severe histopathological damage in lungs repeatedly infected by DENV-2, allowing us to argue that they can be linked to pulmonary complication. Result also showed that the number of infections with similar total DENV-2 titer led to different histopathological changes.

Keyword: Arbovirus; Dengue fever; Hemosiderin-laden macrophages; Mosquito-borne disease; Recurrent infection; Pulmonary complication