Mechanism of Hypersensitivity Pneumonitis (HP) as a Result from the Exposure of Dust from Paddy Milling on Mice (Mus musculus) BALB/C

Abstrak:

The purpose of this research was to analyze the immune response mechanism of Hypersensitivity Pneumonitis (HP) as a result from the exposure of dust from paddy milling on mice (Mus musculus) BALB/C. The research done was a laboratory experimental research with mice (Mus musculus) as experimental animal. The research design used was the post only control group design using mice (Mus musculus) Balb/c as experimental animal. Mice (Mus musculus) BALB/C were exposed to dust from paddy milling for four (4) hours/day and it was done for thirty (30) days with the exposed concentrations respectively were 0.50 mg/m³, 0.75 mg/m³, 1.00 mg/m³. The research variables were free variable, dependent variable, and control variable. Independent variable was dust from paddy milling, dependent variables were Hypersensitivity Pneumonitis (HP), IgE, IL-4, CD8, IFN-γ, inflammatory cells, and histopathological picture of mice lung, while control variables were strain, body weight and age of mice (Mus musculus) BALB/C. The research result showed that there was an increased of IgE, yet statistically there was no significant difference; there was an increase on IL-4, CD-8, IFN-γ, inflammatory cells and lung histopathology and statistically there was a significant difference between the study and control on mice BALB/C. The conclusion of the research was that the immune response mechanism of Hypersensitivity Pneumonitis (HP) as a result from the exposure of dust from paddy milling on mice (Mus musculus) BALB/C. It could be concluded that dust from paddy milling inhaled repeatedly passed into the alveoli and then it was caught by alveolar macrophages which then generated the increase of IL-4 and CD-8. After that, IL-4 generated the increase of IgE which afterward attracted mast cells while CD8 expressed IFN-γ which then activated alveolar macrophages and attracted a number of neutrophil and mast cell which subsequently induced inflammation. The inflammation occurred would develop into other tissue damage and led to Hypersensitivity Pneumonitis (HP). It was suggested that: it be better to repeat with longer exposure time so that the damage in lung be seen more clearly especially the occurrence of granuloma in lung.

Keyword:

Hypersensitivity Pneumonitis (HP), dust from paddy milling

Daftar Pustaka: