

ABSTRACT

IMPACT OF ENDOTOXIN LPS CONTAINING RICE MILL DUST EXPOSURE ON INCREASED SERUM TNF LEVEL ANF DECLINING LUNG FUNCTION OF THE OPERATOR

Exposure to rice milling dust may lead to a spectrum of clinical syndromes mainly affecting lungs and airways. One of the agent with responsibility to airway disease is endotoxin LPS of gram negative bacteria found in various grain dust. Rice mill is occupational environment which potentially give rise to respiratory disease. The aim of this research was to analyze the impact of rice mill dust on lung function and serum TNF α level of rice mill operators. This was analytical observational research using longitudinal approach. This study was conducted at four rice mills and village administration offices in Tulangan Subdistrict. The techniques for collecting data were questionnaire, dust and endotoxin LPS exposure measurement, blood serum TNF α assay and spirometry. Serum TNF α and lung function were measured before and after work (cross shift). The population was rice mill operators in Kenongo, Modong and Pilang village as a study group and village administrator in Kenongo, Modong and Singopadu village as control group. Fifteen samples were taken randomly from control group, while all fifteen operators were taken as samples. Both groups were matched for age, working period, and smoking habit (pack years). Air sampling were performed on as inhalable personal dust samples and total indoor dust samples during working. The result of the research showed that concentration of LPS endotoxin present in personal dust samples was significantly affect increased level of serum TNF (p =0,000). While increasing TNF α level significantly affect on respiratory symptoms among rice mill operator (p =0,000).

Conclusion, exposure of endotoxin LPS in personal dust is the factor that influence increased TNF α level of the operators and furthermore affect respiratory symptoms. Development of effective prevention programs such as improvement of rice mill machine, regulation enforcement of workers health protection and use of personal protection equipment are needed to protect farmers and other agricultural workers.

Keywords : *endotoxin LPS, rice mill dust, lung function, serum TNF α*