ABSTRACT

LPS Endotoxin containing cotton-dust leads to airway inflammation, lung function decline, and pneumonitis. The objective of this research was to analyze the correlation between decline of lung function, increase of serum TNFα level and exposure of LPS endotoxin containing cutton-dust.

This study was analytic observational design using by cohort prospectional approach. It was conducted on Tulangan Subdistrict, Sidoarjo.The population was all the cotton workers in cutton factory as a study group and village administrator as control group. Sixteen samples were taken as sample of control group, while twenty three samples were taken from control group. Techniques for collecting data were interview, dust exposure measurement, endotoxin LPS level, blood serum TNFα assay and spirometry. Serum TNFα and lung function were measured before and after work.

The result showed that LPS endotoxin in personal dust samples was significantly related to increased level of serum TNFα (p=0,027), $\Delta\%FEV_1$ (p=0,002) and ΔFEV_1 (p=0,001) among cotton worker and respiratory complaints (p=0,026), and ΔFVC (p=0,001) on village administrator. LPS endotoxin in ambient dust samples was significantly related to $\Delta\%FEV_1$(p=0,020) and ΔFEV_1(p=0,022) among cotton worker. There was no LPS endotoxin in ambient dust samples on village office. There was significant correlation between personal dust with $\Delta\%FEV_1$(p=0,006) and ΔFEV_1(p=0,006)Δ%FVC(p=0,005) and ΔFVC(p=0,002). There was no correlation between ambient dust with increased level of serum TNFα, lung function decline and respiratory complaints, and there was no correlation between characteristic of workers with increased level of serum TNFα, lung function decline and respiratory complaints, except respiratory complains with packyears (p=0,039).

Conclusion:There is correlation between increase of serum TNFα, decline of lung function and exposure of LPS endotoxin containing cutton-dust. It's sugeested that safety individual protection is needed

Keywords:LPS endotoxin,cotton dust,lung function,serum TNFα,cotton workers