

ABSTRACT

The kapok industry is one industry that can have a negative impact on workers' health if it is not managed properly. The health impact will be preceded by inflammatory reactions. If endotoxin lipopolysaccharide is inhaled by the workers, it will cause inflammatory effects resulting in an increase in C-Reactive Protein in cotton processing industry. The purpose of this study was to analyze the influence of lipopolysaccharide endotoxin level in personal cotton dust. There is an increase in C-Reactive Protein Serum of workers in the cotton-processing household industry, Mojotengah, Pasuruan regency

. This research was an observational research using longitudinal prospective design. This research was conducted on 11 workers of kapok processing industry in Mojotengah, Pasuruan Regency. The research methods used were interview workers, measurements of personal dust levels and lipopolysaccharide endotoxin levels es in cotton dust, as well as inspection of C-Reactive Protein serum level of workers.

The result of the measurement of personal dust content in the average was 5,49 mg/m³. As for measuring endotoxin lipopolysaccharides levels by 142,99 Eu/m³. Spearman correlation was done to see the relationship between personal dust level to the increased levels of C-Reactive Protein Serum of workers, obtained as a result of $p= 0,324$ that there was no significant relationship. Spearman correlation was done to see the relationship between endotoxin lipopolysaccharides levels to to the increased levels of C-Reactive Protein Serum of workers, obtained as a result of $p= 0,027$ that there was significant relationship. There is a relationship between the characteristics of a worker that includes age ($p=0,005$), employment ($p=0,006$), and long-term work ($0,004$) on increasing levels of C-Reactive Protein Serum. And there was no connection between the use of personal protective equipment ($p=0,925$) to increased levels of C-Reactive Protein Serum of workers.

It's concluded that there is no meaningful difference between the levels of C-Reactive Protein Serum before and after work. There is a relationship between endotoxin levels with the change in C-Reactive Protein Serum.

Keywords: Lipopolysaccharide, Kapok dust, and C-Reactive Protein serum.

ABSTRAK

Industri kapuk merupakan salah satu industri dapat memberikan dampak negatif pada kesehatan pekerja jika tidak dikelola dengan baik. Dampak kesehatan tersebut akan didahului oleh reaksi inflamasi. Jika endotoksin lipopolisakarida terhirup oleh pekerja, maka akan menimbulkan efek inflamasi sehingga terjadi perubahan *C-Reactive Protein* pada pekerja industri pengolahan kapuk. Penelitian ini bertujuan untuk menganalisis pengaruh kadar endotoksin LPS dalam debu kapuk personal terhadap perubahan C-Reactive Protein serum pekerja di industri rumah tangga pengolahan kapuk, Mojotengah, Kabupaten Pasuruan.

Penelitian ini merupakan penelitian observasional dengan menggunakan desain penelitian *longitudinal prospective*. Penelitian ini dilakukan pada 11 pekerja industri pengolahan kapuk Mojotengah, Kabupaten Pasuruan. Metode penelitian yang digunakan adalah wawancara pekerja, pengukuran kadar debu personal dan kadar endotoksin lipopolisakarida dalam debu kapuk, serta pemeriksaan kadar C-Reactive Protein serum pekerja.

Hasil pengukuran kadar debu rata-rata sebesar 5,49 mg/m³. Sedangkan untuk pengukuran kadar endotoksin lipopolisakarida sebesar 142,99 Eu/m³. Korelasi spearman dilakukan untuk melihat korelasi kadar debu personal dengan perubahan kadar C-Reactive Protein serum pekerja didapatkan hasil sebesar $p=0,32$ yang artinya tidak ada korelasi yang signifikan. Korelasi spearman dilakukan untuk melihat korelasi endotoksin lipopolisakarida dengan perubahan kadar C-Reactive Protein serum pekerja didapatkan hasil sebesar $p=0,02$, artinya terdapat korelasi yang signifikan. Terdapat korelasi antara karakteristik pekerja yang meliputi umur ($p<0,01$), masa kerja ($p<0,01$), dan lama kerja ($0p<0,01$) dengan perubahan kadar C-Reactive Protein serum pekerja. Dan tidak terdapat korelasi antara penggunaan APD ($p=0,780$) dengan perubahan kadar C-Reactive Protein serum pekerja.

Disimpulkan tidak terdapat perbedaan yang bermakna antara kadar C-Reactive Protein serum sebelum dan sesudah bekerja. Ada korelasi antara kadar endotoksin dengan perubahan C-Reactive Protein serum.

Kata Kunci: Lipopolisakarida. Debu Kapuk, dan C-Reactive Protein serum.