

Hubungan antara Paparan Formaldehida dengan Eosinofil dan Neutrofil Swab Hidung pada Pekerja Industri Kain Ban = The Correlation between Formaldehyde Exposure and Nasal Swab Eosinophil and Neutrophil in Tire Cord Industry Workers

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Abstrak

[Latar belakang : Formaldehida sebagian besar diinhalasi melalui saluran pernafasan bagian atas dan mempengaruhi mukosa hidung. Penelitian ini bertujuan untuk mencari hubungan paparan formaldehida yang ada di industri kain ban terhadap eosinofil dan neutrofil swab hidung.

Metode : Penelitian menggunakan desain potong lintang komparatif. Analisis yang dilakukan menggunakan uji regresi logistik. Responden berjumlah 100 orang laki-laki, terdiri dari 50 responden di bagian dipping dan 50 responden di bagian weaving. Metode pengukuran formaldehida dengan menggunakan metode NIOSH 3500. Metode pengambilan sampel menggunakan total population pada bagian dipping dan simple random sampling pada bagian weaving.

Hasil : Kadar formaldehida lingkungan di bagian dipping adalah 0,032 mg/m³. Prevalensi eosinofil positif pada pekerja weaving dan dipping didapatkan 30% sedangkan neutrofil positif didapatkan sebesar 80%. Tidak ada hubungan yang bermakna antara paparan formaldehida dengan eosinofil dan neutrofil swab hidung. Variabel independent yang paling berpengaruh terhadap neutrofil positif adalah kebiasaan merokok dengan OR 4,680; 95% CI 1,52 – 14,44; p = 0,007.

Kesimpulan : Formaldehida tidak berhubungan bermakna dengan eosinofil dan neutrofil swab hidung, namun pengaruh formaldehida terhadap eosinofil swab hidung belum dapat disingkirkan mengingat adanya gambaran degranulasi eosinofil sehingga diperlukan penelitian lebih lanjut di tingkat seluler., Background : Most of formaldehyde exposure is inhaled in upper respiratory track which affect the nasal mucosa. This study aims at exploring the correlation between formaldehyde exposure in tire cord industry with nasal swab eosinophil and neutrophil.

Methods : The design of the study is comparative cross sectional. Analysis conducted was logistic regression. Total respondents are 100 male consisting of 50 respondents from dipping area and 50 respondents from weaving area. The method for formaldehyde level used NIOSH 3500. The method for collection sample used total population in dipping area and simple random sampling in weaving area.

Results : Formaldehyde level in dipping area was 0,032 mg/m³. The results of the study showed that eosinophils positive at weaving and dipping area were 30% and neutrophils positive were 80%. No significant correlation was found between formaldehyde exposure and eosinophils and neutrophils nasal swab. Independent

variable that mostly influence positive neutrophils was smoking with OR 4.680, 95% CI 1.52–14.44, p = 0.007.

Conclusions : Formaldehyde has no significantly correlation with eosinophils and neutrophils nasal swab, but the effect of formaldehyde on eosinophil nasal swab can not be ignored because of eosinophils degranulation, so further research is still needed at the cellular level.]