

## Pengaruh Paparan Vinyl Chloride Monomer terhadap Perubahan Kadar Enzim Hati di PT. X Tahun 2011-2015 = The Effect of Vinyl Chloride Monomer Exposure to Liver Enzyme Alteration among PT. X Workers Year 2011-2015.

Thomas Aquino Da Gomez, author

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### Abstrak

#### <b>ABSTRAK</b><br>

Latar Belakang: Pada penelitian tahun 2005-2010 ditemukan pekerja PT. X yang terpajan VCM berisiko 2.15 kali menderita gangguan enzim hati. Sehingga perusahaan melakukan program pencegahan dan pengendalian faktor resiko. Pada penelitian ini ingin melihat pengaruh paparan VCM serta faktor lainnya terhadap perubahan kadar enzim hati pekerja PT. X ini setelah dilakukan upaya perbaikan.

Metode: Desain penelitian adalah Kohort Retrospektif menggunakan data sekunder MCU tahun 2011-2015. Melibatkan 196 orang sampel, dimana pekerja terpajan VCM 98 orang dan sisanya tidak terpajan VCM. Saat awal, kondisi enzim hati seluruh sampel dalam batas normal. Penilaian peningkatan enzim hati berdasarkan enzim AST dan ALT. Analisis statistik menggunakan Chi Square dengan  $p < 0.05$ . Multivariat menggunakan Regresi Cox.

Hasil: Didapatkan 76 orang (38.8%) mengalami peningkatan enzim hati, 40 orang (40.8%) pekerja terpajan VCM dan 36 orang (36.7%) tidak terpajan VCM. Jumlah kasus baru tahun 2012 adalah 14.3% menurun menjadi 4.6% tahun 2015. Hasil analisis Chi Square menyatakan tidak ada hubungan bermakna antara faktor usia, jenis kelamin, masa kerja, posisi jabatan, indeks masa tubuh, obesitas sentral, riwayat DM dan kebiasaan olah raga dengan perubahan kadar enzim hati ( $p > 0.05$ ). Untuk Regresi Cox menegaskan bahwa tidak ada hubungan bermakna antara paparan VCM (RRsuaian=0.82; IK95% = 0.52-1.31;  $p=0.410$ ) terhadap perubahan kadar enzim hati.

Kesimpulan: Paparan VCM tidak berpengaruh terhadap perubahan kadar enzim hati. Perubahan kadar enzim hati yang terjadi berupa penurunan karena jumlah kasus baru terus menurun setiap tahun.

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#### <b>ABSTRACT</b><br>

Background: In the 2005-2010 study found that PT. X workers exposed to VCM had a 2.15 times greater risk of liver enzyme disorders. So the company conducted prevention and control programs against the risk factors. In this study we want to see the effect of VCM exposure and other factors on alteration in liver enzyme levels of PT. X workers after the improvement effort.

Method: The study design is Retrospective Cohort using secondary data of MCU in 2011-2015. There are 196 persons involved as samples, where 98 workers are exposed to VCM and the rest are not exposed to VCM. At baseline, the liver enzyme conditions throughout the sample are within normal limits. Assessment of elevated liver enzymes based on AST and ALT enzymes. The Chi-squared test with  $p < 0.05$  is used for statistical analysis. Multivariate uses Cox Regression.

Results: 76 people (38.8%) had elevated liver enzymes, 40 (40.8%) exposed workers VCM and 36 people (36.7%) were not exposed to VCM. The number of new cases in 2012 is 14.3% decreased to 4.6% in 2015. Chi Square analysis results show no significant relationship between age, sex, work period, job title, body

mass index, central obesity, history of DM and exercise habits with liver enzyme levels alteration ( $p > 0.05$ ). The Cox Regression test confirms that there is no significant association between VCM exposure ( $RR_{adjusted}=0.82$ ;  $CI_{95\%}=0.52-1.31$ ;  $p=0.410$ ) to liver enzyme levels alteration. Conclusions: VCM exposure has no effect on alteration in liver enzyme levels. Alteration of liver enzyme that occur is a decrease as number of new cases continues to decline every year.