

Risiko pajanan metil metakrilat terhadap keluhan respirasi dan fungsi paru pekerja laboratorium teknik gigi = Risk of methyl methacrylate exposure toward respiratory symptom and pulmonary function among dental laboratory worker

Wisnu Wardhana, author

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Abstrak

Pendahuluan : Pekerja laboratorium teknik gigi memiliki risiko mengalami gangguan sistem respirasi yang dapat mengakibatkan gangguan fungsi paru akibat pajanan metil metakrilat (MMA). Penelitian ini bertujuan untuk mengetahui kadar MMA di lingkungan laboratorium teknik gigi di DKI Jakarta dan Kotamadya Tangerang, risiko pajanannya terhadap keluhan respirasi dan gangguan fungsi paru, serta hubungannya dengan faktor individu dan pekerjaan.

Metode : Desain penelitian cross sectional melibatkan 69 pekerja laboratorium teknik gigi dari 4 laboratorium. Pengumpulan data dilakukan dengan wawancara, pengamatan, pengukuran kadar MMA lingkungan dan pemeriksaan spirometri.

Hasil : Kadar MMA pada 4 laboratorium teknik gigi adalah $0,26 \pm 5,72$ ppm, jauh di bawah Nilai Ambang Batas. Ditemukan hubungan bermakna ketersediaan ventilasi personal dengan kadar MMA ($p < 0,05$).

Prevalensi keluhan subyektif respirasi 39,1 %, dengan faktor yang berhubungan adalah kadar MMA $>0,5$ ppm (OR = 4,90, 95% CI: 1,49 $\pm$ 16,14) dan masa kerja >10 tahun (OR = 0,14, 95% CI: 0,03 $\pm$ 0,61).

Prevalensi gangguan fungsi paru 44,9 %, seluruhnya restriktif. Faktor yang berhubungan dengan gangguan fungsi paru adalah kebiasaan merokok (OR = 3,94, 95% CI: 1,22 $\pm$ 12,76) dan kadar MMA $>0,5$ ppm (OR = 3,29, 95% CI: 1,01 $\pm$ 10,80).

Kesimpulan : Kadar MMA $>0,5$ ppm memberikan risiko 4,9 kali lebih besar timbulnya keluhan subyektif respirasi pada pekerja. Kadar tersebut juga memberikan risiko 3,29 kali lebih besar timbulnya gangguan fungsi paru pada pekerja. Pekerja yang sudah bekerja >10 tahun menurunkan kemungkinan timbulnya keluhan subyektif respirasi sebesar 86 %. Efek ini diperkirakan akibat timbulnya toleransi pekerja terhadap keluhan subyektif seiring dengan waktu. Pekerja yang merokok memiliki risiko 3,94 kali lebih besar mengalami gangguan fungsi paru.

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Background : Dental laboratory workers are at risk of respiratory symptom and pulmonary function disorder, due to exposure to methyl methacrylate (MMA). The objective of this study is to know the level of MMA at dental laboratories at DKI Jakarta and Kotamadya Tangerang, the risk of its exposure toward respiratory symptom and pulmonary function disorder among dental laboratory worker, and its association with individual and occupational factors.

Method : This is a cross sectional study involving 69 dental laboratory workers from 4 laboratories. Data were collected through interview, observation, environmental MMA measurement and lung function examination by spirometer.

Result : MMA levels in 4 dental laboratories were 0.26 ± 5.72 ppm, well below Threshold Limit Value. The prevalence of respiratory symptom was 39.1 %, with associated factors are MMA level >0.5 ppm (OR = 4.90, 95% CI: 1.49 $\pm$ 16.14) and working period of >10 years (OR = 0.14, 95% CI: 0.03 $\pm$ 0.61). The

prevalence of pulmonary function disorder was 44.9 %, all of them restrictive. Factors associated with pulmonary function disorder were smoking habit (OR = 3.94, 95% CI: 1.22 ? 12.76) and MMA level >0.5 ppm (OR = 3.29, 95% CI: 1.01 ? 10.80).

Conclusion : MMA level of >0.5 ppm pose a 4.9 times greater risk of respiratory symptom among workers. That level also poses a risk 3.29 times greater of pulmonary function disorder among workers. Workers with >10 years length of service decreased their possibility of respiratory symptom by 86%. This effect is probably due to tolerance the workers develop towards the subjective symptoms. Smoking workers have a risk 3.94 times greater for pulmonary function disorder.