

Kadar kotinin urin dan CO ekspirasi pada perempuan dewasa yang terpapar asap rokok di lingkungan rumah = Urinary cotinine concentrations and CO expiration in women exposed to environmental tobacco smoke at home

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Abstrak

[ABSTRAK

Latar Belakang: Penelitian mengenai dampak kesehatan dari pajanan asap rokok lingkungan dengan menggunakan kotinin, yaitu suatu hasil metabolisme nikotin yang terdeteksi dalam urin, telah direkomendasikan sebagai pengukuran kuantitatif nikotin dalam tubuh dan biomarker pajanan asap rokok lingkungan. Tujuan: Tujuan penelitian ini untuk melihat hubungan pajanan asap rokok di rumah pada perempuan dewasa bukan perokok, dengan mengukur kadar kotinin urin, CO ekspirasi dan melihat dampak kesehatannya.

Metode: Penelitian ini berjenis potong lintang terhadap 60 orang perempuan dewasa bukan perokok terpajan dan 58 orang tidak terpajan asap rokok di rumahnya dalam wilayah Pasar Rebo, Jakarta. Kadar kotinin urin diukur menggunakan metode pemeriksaan ELISA. Sebagai informasi tambahan, kami mengumpulkan data kadar CO ekspirasi, kuesioner kebiasaan merokok anggota keluarga di rumah dan dampak kesehatan respirasi subyek penelitian.

Hasil: Nilai median kadar kotinin urin yang didapat adalah 24,65 ng/ml pada kelompok terpajan dan 7,30 ng/ml pada kelompok tidak terpajan ($p=0.000$). Nilai median kadar CO ekspirasi adalah 5,00 ppm pada kelompok terpajan dan 3,00 ppm pada kelompok tidak terpajan ($p=0.000$). Durasi terpajan asap rokok (jumlah jam/hari) pada perempuan perokok pasif memiliki hubungan signifikan dengan tinggi rendahnya kadar kotinin urin ($p=0.037$). Gejala sesak napas yang muncul berhubungan signifikan dengan status pajanan asap rokok subjek ($p=0.01$). Faktor lama pajanan asap rokok terakhir memiliki hubungan signifikan dengan kadar CO ekspirasi ($p=0,004$). Nilai titik potong kotinin urin antara kelompok terpajan dan tidak terpajan asap rokok adalah 14,4 ng/ml (sensitifitas 75,0 %, spesifisitas 74,0 %, $p=0.000$). Nilai titik potong CO ekspirasi adalah 3,5 ppm (sensitifitas 75,0 %, spesifisitas 81,0 %, $p=0.000$). Terdapat korelasi yang cukup kuat dan signifikan antara kadar CO ekspirasi dan kotinin urin ($r=0,641$, $p=0,000$).

Kesimpulan: Kadar kotinin urin dan CO ekspirasi pada perempuan dewasa yang terpajan asap rokok lebih tinggi dibandingkan perempuan yang tidak terpajan asap rokok di rumah. Pengukuran kotinin urin adalah metode pengukuran pajanan asap rokok lingkungan dalam tubuh yang sensitif, non-invasif dan efektif.

Introduction :Studies of environmental tobacco smoke (ETS) health effects using cotinine, a nicotine metabolite detected in urine, has been recommended as a quantitative measurement of nicotine intake and as biomarker for ETS exposure in humans.

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Objective: The aim of this study is to correlate daily indoor ETS exposure in non-smokers (adult women) by measuring urinary cotinine levels, CO expiration and its health effects.

Method: We performed a cross-sectional study to 60 ETS-exposed and 58 non ETS exposed adult women in

Pasar Rebo area, Jakarta. The urinary cotinine concentrations were measured and analyzed using ELISA method. In addition, CO expiration data and other information were collected through questionnaire regarding smoking habits of the subjects family members at home and respiratory health effects occurred to subjects.

Results: Significant median urinary cotinine concentrations were found; 24,65 ng/ml in ETS-exposed group and 7,30 ng/ml in non-exposed to ETS group($p=0,000$). Significant median CO expiration also were found; 5,00 ppm in ETS exposed group and 3,00 ppm in non-exposed to ETS group ($p=0.000$). Total amount of time (hours/day) women exposed to ETS in their house was significantly correlated to urinary cotinine concentrations result ($p=0,037$). The respiratory symptoms (dyspnea) occurred to subjects showed significant relation with ETS exposure status ($p=0,01$). Time duration of last exposed to ETS had significant relation with CO expiration ($p=0.004$). The urinary cotinine concentrations cut-off point to differentiate ETS exposed and non-ETS exposed group in adult women was 14,4 ng/ml (sensitivity 75%, specificity 74%, $p=0.000$). The CO expiration cut-off point was 3,5 ppm (sensitivity 75%, specificity 81%, $p=0.000$). Strong and significant correlation was found between CO expiration and urinary cotinine value ($r=0,641$, $p=0,000$).

Conclusion: The urinary cotinine concentration and CO expiration are significantly higher in women exposed to tobacco smoke at home group than the non-exposed group. Urinary cotinine measurement is a sensitive, noninvasive and effective method to correlate with ETS exposure.;

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