Analisis Pajanan Timbal Di Udara Terhadap Kejadian Anemia Pada Anak Usia 7-13 Tahun Di Wilayah Daur Ulang Aki Bekas Informal Tangerang, Bekasi, Bogor Dan Depok = Analysis of lead exposure in the air on the Incidence of Anemia of 7-13 years old children in the informal Used Battery Recycling Area in Tangerang, bkasi, Bogor, and Depok

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Abstrak

Penelitian ini bertujuan untuk mengetahui hubungan antara konsentrasi pajanan timbal di udara terhadap kejadian anemia diantara anak-anak berusia 7 hingga 13 tahun yang tinggal di sekitar lokasi daur ulang aki bekas informal di wilayah Jabotabek. Sebuah studi Cross-sectional dilakukan di tiga lokasi (Tangerang, Bogor, Bekasi dan Depok) yang terdapat kegiatan daur ulang aki bekas informal. Populasi penelitian adalah anak usia 7 hingga 13 tahun di wilayah daur ulang aki bekas informal, dengan total sampel 418 orang. Sampel lingkungan adalah mengukur kosentrasi timbal di udara mengunakan High Volume Air Sampler (HVAS) dan dianalisis dengan spektrometri serapan atom (AAS). Untuk mengatahui kejadian anemia dilakukan pengukuran Hb darah dengan HemoCue® Hb 201+ System. Analisis multivariat dilakukan untuk mengevaluasi faktor yang terkait dengan kejadian anemia pada anak. Hasil penelitian didapatkan rata-rata konsentrasi timbal di udara (n=52) adalah 2,96 g/m3 dengan kisaran 0,01 hingga 78,05 g/m3 dan standar deviasi 13,23. Rata-rata kadar Hb darah anak-anak adalah 11,89 g/dL kisaran 7,7 hingga 16,10 g/dL, dengan prevalensi anemia 51,2%. Konsentrasi timbal tinggi di udara sangat terkait dengan peningkatan kejadian anemia pada anak (OR: 3,96; 95% CI: 1,83-8,56) setelah di kontrol faktor prilaku konsumsi kalsium (OR: 0,68; 95% CI: 0,46-1,01). Studi ini menunjukan hubunan antara paparan timbal di udara dengan kejadian anemia dan menyoroti perlunya memperkuat kebijakan, pengawasan dan pengembangan strategi untuk mengurangi paparan timbal.

.....This research aims to determine the relationship between the concentration of lead's exposure in the air to the incidence of anemia among children between 7 and 13 years, living around an informal recycling site of the used battery in the Jabotabek region. A Cross-sectional study was conducted at three locations (Tangerang, Bogor, Bekasi, and Depok) which have recycling activities of the former informal battery. The research population is a 7-to 13-year-old child in the recycling area of used battery, with a total sample of 418 people. The lead concentration in the air is measured by using the High Volume Air Sampler (HVAS) and analyzed by atomic absorption spectrometry (AAS). To be in the event of anemia done measurements of Hb blood with HemoCue® Hb 201+System. Multivariate analyses were conducted to evaluate the factors related to the incidence of anemia in children. The results of the study obtained an average of the lead concentration in the air (n = 52) were 2.96 g/m3 with a range of 0.01 to 78.05 g/m3 and a standard deviation of 13.23. The average rate of Hb blood of children is 11.89 G/dL range 7.7 to 16.10 G/dL, with the prevalence of anemia is about 51.2%. The high lead concentration in the air is associated with an increased incidence of anemia in children (OR: 3.96; 95% CI: 1.83-8.56) after control of calcium consumption behavior factor (OR: 0.68; 95% CI: 0.46-1.01). The study showed a relationship between exposure to lead in the air and the incidence of anemia and highlighted the need to strengthen policy, supervision and

development strategies to reduce lead exposure.