



ABSTRACT

Correlation between zinc intake and hair zinc levels to morbidity of infectious diseases in children aged 24-35 months in Jakarta

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Background: According to WHO, preventable diseases, including infectious diseases, are the most common cause of death in children. Based on Indonesia's 2019 health profile data, the top five morbidity and mortality in children aged 1-4 years are acute respiratory tract infections (ARI) of (25.8%), pneumonia (21.7%), fever (14%), diarrhea and gastrointestinal disease (14.4%). Zinc has an important role in immunity especially for younger child.

Objectives: The aim of this study was to assess the correlation between zinc intake and hair zinc levels to morbidity of infectious diseases in 24-35 months old children in Jakarta.

Methods: A cross-sectional study was done to 70 children aged 24-35 months from September to October 2020 at Kampung Melayu Health Center in East Jakarta. Structured questionnaire was used to collect data of subjects's characteristics and the prevalence of infectious diseases for the past 1 month. Zinc, calorie and protein intake data were taken using the semi-quantitative FFQ. Anthropometric measurements were done for the weight and height. Hair zinc level were measured using the spectrometry method in a laboratory. Data analysis was done by Spearman rank correlation test and p-value less than 0.05 were considered statistically significant.

Results: The average hair zinc level is 132 µg/gram hair, 17.1% of subjects had hair zinc deficiency. There were 65 cases of frequent illness within 1 month, where the most cases were ARI (32 cases or 45.8%), diarrhea (15 cases, 21.5%), skin rashes (13 cases, 18.6%) and observation of fever in 5 cases (7.1%). The study showed no correlation between zinc intake and morbidity of infectious disease ($p=0,694$; $r = 0,048$) and there was no correlation between hair zinc level and morbidity of infectious disease ($p=0,955$; $r = 0,007$).

Conclusion: The study found no correlation between zinc intake, hair zinc level and morbidity of infectious disease. Further research is needed using different parameters and determinants of childhood morbidity in Jakarta.

Keywords: zinc intake, hair zinc level, morbidity of infectious disease, child

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