ANTIOXIDANT ENZYME ACTIVITY AMONG ORPHANS INFECTED WITH INTESTINAL PARASITES IN PATHUM THANI PROVINCE, THAILAND

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Abstract. Intestinal parasitic infections can negatively impact growth and nutrition in children. The infections can induce oxidative stress, resulting in a variety of illnesses. We measured antioxidant enzyme levels in orphan children infected with intestinal parasites to investigate the influence of nutritional status on antioxidant enzymes. This cross sectional study was conducted at an orphanage in Thailand. Stool samples were obtained from each subject and examined for intestinal parasites. Anthropometric measurements, complete blood count and biochemical parameters, including serum superoxide dismutase (SOD) and glutathione peroxidase (GPx) levels, were obtained from studied subjects. One hundred twenty-eight children were included in the study. Intestinal parasites were found on microscopic examination of the stools in 36.7% (47/128); 18% (23/128) had a mixed parasite infection. Intestinal protozoa were found in 34.4% of subjects and intestinal helminthes were found in 2.3%. The median GPx level in children infected with intestinal parasites (2.3 ng/ml) was significantly lower than in non-infected children (7.7 ng/ml) ($p<0.05$). However, there was no significant difference in SOD levels between the two groups. When comparing GPx levels in children with 1) pathogenic parasites, 2) non-pathogenic parasites and 3) no intestinal parasite infection, GPx levels differed significantly among three groups (2.2 ng/ml, 2.4 ng/ml and 7.7 ng/ml, respectively) ($p<0.05$). When separating children by BMI and type of infection, the median SOD level in underweight children infected with pathogenic parasites (107.2 ng/ml) was significantly higher than in underweight children infected with non-pathogenic parasites (68.6 ng/ml) and without intestinal parasite infections (72.2 ng/ml). The present study identified two key findings: low GPx levels in children with intestinal parasitic infections, and the potential impact of malnutrition on some antioxidants.

Keywords: orphanage, antioxidant, intestinal parasites, nutritional status, Thailand

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