

ABSTRACT

Chlorine can be released into the ambient and can be inhaled by workers who work in the swimming pool area. The body's defense mechanism is activating Glutathione Peroxidase (GPx) to suppress chlorine risk. When the enzyme GPx was not able to keep up the chlorine risk, Malonildialdehyde (MDA) will be released. The purposes of this research is to analyze the effect of exposure to chlorine against GPx, MDA, and respiratory disorders of swimming pool workers.

The method of this research was analytical observation with cross sectional study. The location of research at swimming pool which use chlorine as disinfectant. Sample size had 24 persons that was taken by simple random sampling, 12 persons from each disinfectant operator and administration workers. Data analysis used linear and logistic regression.

The analysis results shown that GPx activity were effected by chlorine level in air ($p= 0,042$) and smoking habits ($p=0,013$). MDA concentration were effected by chlorine level in air ($p=0,000$) and age ($p=0,049$). Respiratory disorders was effected by chlorine level in air ($p=0,039$).

The conclusion of this research was exposure of chlorine effect of GPx activity and MDA concentration swimming pool workers. Moreover, chlorine level in air were affected respiratory disorders.

The suggestions of this research is swimming pool manager must be monitor chlorine levels in air and water periodically on swimming pool. And to swimming pool workers should notice to wind direction when disinfection process to prevent respiratory disorders.

Keywords : chlorine exposure, swimming pool, GPx activity, MDA, respiratory disorders