THE STUDY OF ANTIOXIDANT ENDOGENOUS LEVELS OF OBESITY MICE THAT INDUCED BY 2-NITROPROPANE

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ABSTRACT

Background: Obesity are linked to more deaths worldwide. In obesity, there will be dysregulation of growth signals such as tumorigenesis, angiogenesis, as well as chronic minimalist inflammation that lasts a long time. The mechanism by which 2-NP causes toxicity is poorly understood. This study aimed to determine the effect of induction of 2-Nitropropane in obesity mice on antioxidant status seen from MDA, and GSH enzyme specific activity.
Subjects and Method: This was a randomized controlled trial with posttest-only control group design conducted at Biochemstry Laboratory, with laboratory experimental research. A sample of 20 mice were selected and then randomized into 4 groups: N (normal control), O (obesity control), 2NP1x (obesity mice induced by 2-Nitropropane 20mg/kgBW once), and 2NP2x (obesity mice induced by 2-Nitropropane 20 mg/kg twice). The dependent variable was MDA levels. The independent variable was obesity mice. The mice in the intervention group were treated with induction of 2-Nitropropane. The difference of MDA levels, GSH levels between groups was compared and tested by one way Anova.
Results: After intervention, mean of MDA Level group 2NP2x (Mean= 4.99; SD= 1.05) was highest than group N (Mean= 2.49; SD= 0.37), O (Mean= 3.77; SD= 0.41) and 2NP1x (Mean= 4.48; SD= 0.69), and it was statistically significant (p< 0.001). After intervention, mean of GSH Level group 2NP2x (Mean= 0.86; SD= 0.02) was lowest than group N (Mean= 1.72; SD= 0.23), O (Mean= 1.44; SD= 0.19), and 2NP1x (Mean= 0.95; SD= 0.04), it was statistically significant (p< 0.001).
Conclusions: Induction of 2-Nitropropane 20mg/kgBW once and twice had an effect on decreasing of oxidative status of obesity mice with increasing of MDA liver level (p< 0,000) compared to normal control (N). A decreased endogenous antioxidant status of obesity mice was seen from decreasing GSH activity liver level of obesity mice that induced by 2-Nitropropane 20mg/kgBW once and twice (p< 0.000) compared with normal controls (N). There was an increase in MDA levels in the liver of mice and a decrease in the specific activity of the liver GSH enzyme in obese mice as a sign of oxidative stress after 2-Nitropropane induction.

Keywords: 2-Nitropropane, Obesity, MDA, GSH.

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