



ABSTRACT

Title of Abstract : The Effect of Selenium and Multiple Micronutrient Administration during Periconception Period on the Level Glutathione Peroxidase (GPx)
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Background : Prevention of preeclampsia by preventing trophoblast cells damage from oxidative stress in early pregnancy using selenium supplementation is a recent and potentially cost effective means of addressing a serious worldwide problem. Several studies have demonstrated the potential effectiveness of this intervention. GPx is an antioxidant marker that indicates the ability for a woman and fetus to withstand oxidative stress during pregnancy.

Objective : This study aims to look at the effect of selenium and multiple micronutrient administration on women during periconception on the level of glutathione peroxidase (GPx).

Research Methods/ Implementation Methods : A double blind, randomized, control community based trial design was used in three sub-districts in the Banggai Regency of Central Sulawesi Province, Indonesia. Samples from 103 women recruited during preconception were obtained. Ten women were pregnant and randomized. Five women were in the intervention group and five in the control group. The intervention group received Selenium 65 µg/day in a multi-micronutrient preparation (MMN), while the control group was given capsules containing iron and folic acid (Indonesian national program). During the preconceptional time, capsules were given once a week, while pregnant women were given the capsules daily. At the 12th and 20th weeks of pregnancy Selenium level examination using electrothermal atomic absorption spectrophotometry (SSA), Glutathione Peroxidase (GPx) level was conducted using a sandwich ELISA method. Statistical analysis was done using T-statistics and path analysis by Partial Least Squares (PLS).

Results : The group given MMN experienced a statistically significant increase of 28.4% of plasma GPx at the 12th week of gestation, and a 36.4% increase at 20th weeks of gestation. (T-statistics=2.703>1.96) and (3.062>1.96), The control group had no increase in serum GPx.

Conclusion/Lesson Learned : The administration of selenium in MMN preparations during the periconception period may be effective in reducing oxidative stress in pregnancy. Further study in evaluating the role of micronutrients in conjunction with Selenium to prevent hypertension during pregnancy is warranted.

Keyword : Selenium, GPx, Periconception, pre-eclampsia.