### Title: Association of Folic acid intake and the level of serum Folate with occurrence of Preeclampsia in clients of ALZAHRA educational hospital: a case-control study

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**Abstract:** Background & Objectives: Preeclampsia is an alarmingly common pregnancy condition. Enormous etiologies have been presented in causing and onset of preeclampsia. Recently there has been more attention towards the role of Folic acid. This study was performed to investigate association of Folic acid intake and the level of serum Folate with occurrence of Preeclampsia in clients of ALZAHRA educational hospital, 2009.

**Methods and Materials:** subjects of this case-control study were 52 preeclamptic women aged at 18-35 with 34-42 weeks of gestation and 52 normotensive healthy pregnant matched by age, number of pregnancy and gestational age. Study setting was ALZAHRA educational hospital in 2009. Data was gathered through an interview with the women and review of their medical records. Serum folate levels were measured by Roche brand kit (reference range 3.1-17.5 µg/l), on Elecsys-2010 system using the electrochemiluminescence method at Danesh lab. Data were analyzed by descriptive statistical tests (means, standard deviation and frequency) and inferential statistics (t-test, chi-square, Fisher's exact test and logistic regression) using SPSS13/win software.

**Results:** Serum levels of Folate was significantly lower in the preeclamptic group (10.9±3.9 vs 13.6±4.0 ng/ml, p=0.001). About half of women in the case group and three-quarters in the control group regularly consumed supplements containing Folic acid before and during the first trimester of pregnancy. Ten percent of women in the case group started regular consumption of supplements containing Folic Acid during the second trimester of pregnancy (3 cases) or stopped its consumption before end of the second trimester (2 cases), while such cases were not reported in the control group. In total, frequency of regular use of supplements containing Folic acid in the case group were significantly lower than control group (p=0.02). The finding of food frequency consumption showed that the mean of fruit group consumption per week in preeclamptic women was significantly lower than non-preeclamptic women (2.8 vs. 3.5, p=0.002). Multivariate analysis showed a significant decrease in the frequency of preeclampsia in women with high serum levels of Folate and the frequency of preeclampsia was decreased with increasing the serum levels of Folate (OR=0.88, CI95%:0.77-0.99).

**Conclusion:** As result of this study showed an association between serum levels of Folate and preeclampsia, also low frequency of regular consumption of supplements containing Folic acid in women with preeclampsia, it is better all health care providers including midwives emphasize on the importance of supplements containing Folic acid and its possible role in the prevention of preeclampsia during client educations.

**Presentation:** Oral