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## The impact of maternal micronutrient levels on risk of offspring neural tube defects

Maha M Saber Abd El Latif, Eman M El-Sayed and Sahar A Abdelaziz  
National Research Centre, Egypt

Neural tube defects (NTD) are important causes of infant mortality. Poor nutrition is an important factor for central nervous system deformation. Mothers giving birth to NTD offspring had abnormal serum levels of micronutrients. The present research was designed to study the effect of maternal micronutrient levels and oxidative stress on the incidence of NTD in offspring. The study included 40 mothers; 20 of them of 30.9±7.28 years, had conceived fetuses with NTD were considered as cases; and 20 mothers of 28.2±7.82 years with healthy neonates. We determined serum vitamin B12 and folic acid by using radioimmunoassay. Also, serum zinc was assessed using atomic absorption spectrophotometry. While serum copper and iron were measured colorimetrically, serum ceruloplasmin was analyzed by radial immunodiffusion. Cases showed significantly lower levels of folic acid, vitamin B12 and zinc ( $P < 0.0005$ , 0.01, 0.01 respectively) than that of the control. Concentrations of copper, ceruloplasmin, and iron were markedly increased in cases as compared to controls ( $P < 0.01$ , 0.01, and 0.05 respectively). In conclusion, the current study clearly indicated that the etiology of NTD cannot be explained with one strict etiologic mechanism, on the contrary, an interaction among maternal nutritional factors and oxidative stress would explain these anomalies. Vitamin B12, folic acid and zinc supplementations should be considered for further decrease in the occurrence of NTD. Preventing excess iron during pregnancy favors better pregnancy outcomes.

### Biography

Maha M Saber is currently the Head of Complementary Medicine Department in the National Research Centre, Egypt. She is also the Professor of child health, consultant of Pediatrics and consultant of therapeutic nutrition. She received her MB BCh degree in 1985 from the Faculty of Medicine, Ain Shams University and her Master's degree in Pediatrics in 1990. She received her PhD in Child health in 1995. Her research work has been focused lately on therapeutic nutrition, complementary medicine and bee products and their therapeutic effects. She organized and contributed to national and international research projects since 1998 and up till now; she has been the Principal Investigator and Member of multiple research projects within the National Research Center. She has published many scientific papers and articles in national and international journals. She is also the Head of the field of complementary medicine, Head of the field of management of regional obesity at the Center of Excellence, National Research Center, and the President of the Arabic Society of Therapeutic Nutrition and Complementary Medicine.

mahasaber\_1@yahoo.com

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