

Evaluation of Serum Nitrite, Nitrate and Malondialdehyde Concentrations in Preeclampsia

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Abstract

Introduction: Preeclampsia is a complication of pregnancy that is associated with high blood pressure with an unknown etiology. There is much evidence that altered endothelial cell functions may play an important role in the pathogenesis of preeclampsia. The aims of this study were to determine serum levels of nitrite, nitrate and malondialdehyde (MDA) in pregnant women with and without preeclampsia.

Materials and Methods: This observational-analytical study was performed in the third trimester of pregnancy on 35 pregnant primiparas with preeclampsia and 35 women with normal blood pressure. The women were recruited for the study among the mothers attending Andimeshk Urban Health Centers during March 2008 to March 2009. Aside from the demographic data, the gestational age and blood pressure were recorded too at the time of blood sampling. Serum levels of nitrite and nitrate were measured by Griess and MDA by thiobarbituric acid reactions. The data were statistically analyzed and compared between the two groups.

Results: Serum levels of nitrite, nitrate and MDA, respectively were 12.6 ± 3.8 , 23.8 ± 8.6 and $9.7 \pm 2.8 \mu\text{mol/l}$ in women with preeclampsia and 8.7 ± 2.5 ($p < 0.001$), 16.4 ± 5.4 ($p < 0.01$) and $6.34 \pm 1.6 \mu\text{mol/l}$ ($p < 0.001$) in the controls. The results depicted significantly higher serum concentrations of the three analyses in pregnant women with preeclampsia relative to the controls.

Conclusion: Significantly higher serum concentrations of nitrite, nitrate and MDA in pregnant women with preeclampsia are suggestive of the role of these substances in the pathogenesis of the disease. Use of the three parameters may be useful in the early screening of preeclampsia.

Keywords: Blood pressure, Malondialdehyde, Nitrate, Nitrite, Preeclampsia, Pregnancy, Prenatal care, Third trimester.

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