The role of Testosterone in Preeclampsia

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Abstract

Background: Preeclampsia is a form of high blood pressure manifested during pregnancy, it is a common major complication causing significant morbidity and mortality; however, its etiology is still unknown.

The systemic vasculature is a target tissue for sex steroid hormone. Estrogen, androgen, and progesterone all influence the function and pathophysiology of the systemic circulation by influencing endothelial derived nitric-oxide pathway.

Objective: *was* to demonstrate the pattern of sex steroid (testosterone) in preeclampsia with respect to normal pregnancy, and the correlation of the above parameter with nitric-oxide pathway.

Subject and methods: The present study is a cross-sectional case-control study includes measurement of nitric oxide, nitric oxide synthase, and sex steroid (testosterone) in 60 patients with preeclampsia. They were classified, according to the gestational age, into two groups:

*Preeclamptics in the second trimester G1: (n=30).

*Preeclamptics in the third trimester G2: (n=30).

The results were compared with 60 apparently healthy pregnants (control group), who were, also, classified according to the gestational age into two groups:

- Pregnants in the second trimester G3: (n=30).
- Pregnants in the third trimester G4: (n=30).

Results: showed a significant reduction in serum NO and NOS in the preeclamptics as compared to the controls which was accompanied by a significant increase in serum testosterone. The inhibitory effect of testosterone on NO production is supported by negative correlation between these parameters.

The disturbance in vasodilation state and testosterone can be attributed to malfunction placenta, and it varies according to the gestational age and advancing disease state; being the best in G4 (normal pregnants in the third trimester), and the worse in G2 (preeclamptics in the third trimester) as indicated by NO measurement.

Conclusion: preeclamptics (in different gestational age groups) experienced vasospasm, hyperandrogenemia when compared with healthy pregnants matched with their age and gestational age.

Key words: preeclampsia, nitric oxide, testosterone,Testosterone in preeclampsia.

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Introduction

Preeclampsia is defined as the onset of hypertension and the presence of proteinuria during pregnancy, usually occurring after the 20th week of gestation in a previously normotensive woman and resolving completely by the sixth week after delivery of fetus [1, 2].

The pathophysiology of preeclampsia is thought to represent a defective response to the physiologic demands of normal pregnancy [2, 3]. Endocrine changes in pregnancy are largely dependent on the concerted production of protein and steroid hormones by the fetoplacental unit [4]. These endocrine changes support the successful establishment, maintenance, and termination of pregnancy [4]. It has

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