

Original Article

RELATIONSHIP BETWEEN ELEVATED MATERNAL SERUM PODOCALYXIN CONCENTRATIONS WITH BLOOD PRESSURE VALUES AND ROUTINE LABORATORY PARAMETERS IN PREECLAMPSIA

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Summary

Podocalyxin (PCX) is a glycoprotein member of the CD34 transmembrane sialomucin family and covers the surface of podocytes. It is assumed to be a marker of glomerular endothelial injury. In conditions, podocalyxin excretion in the urine is increased as a result of podocyte injury. Recent studies show that PCX is expressed not only in kidneys but also in the endothelial cells of other organs. Preeclampsia (PE) is characterized by new-onset hypertension, generalized endothelial injury, and glomerular alteration. Having this in mind, in the present study, we aimed to: (1) determine circulating PCX levels in sera of women with preeclampsia and normal pregnancy; (2) explore for an association between PCX and blood pressure and (3) investigate a possible relationship between PCX and routine laboratory markers of cardiac and renal injury/dysfunction. Fifty-five women with preeclampsia were examined. The mean age of patients was 24.9±6 years, and the mean age of the control group of 35 women with normal pregnancies was 24.7±5.4 years. The enzyme-linked immunosorbent assay (ELISA) was used to determine concentrations of PCX. Levels of serum PCX in preeclamptic women were statistically significantly higher than those in women with normal pregnancy: 2.66±0.67 vs. 2.40±0.33 ng/ml (p=0.03). Podocalyxin correlated with SBP (r=0.30; p=0.004), DBP (r=0.35; p=0.0007), uric acid (r=0.32; p=0.002), CPK (r=0.22; 0.03) and its isoenzyme CK-MB (r=0.21; p=0.04). Our results showed significantly higher levels of serum PCX in women with preeclampsia than in healthy pregnancy. Elevated podocalyxin levels are associated with an increase in blood pressure in preeclampsia. We found a relationship between PCX and routine laboratory indicators of cardiac (CPK and CK-MB) and renal injury/dysfunction (uric acid). PCX has the potential as a future preeclampsia diagnostic biomarker.

Keywords: podocalyxin, blood pressure, preeclampsia, laboratory markers of cardiac and renal injury/dysfunction

Introduction

Preeclampsia (PE) is defined by the occurrence of new-onset hypertension (140/90 mmHg) and either proteinuria (0.3g in a 24h urine sample) or end-organ dysfunction developing after 20 weeks of gestation. PE occurs as a complication in approximately 2–8% of all pregnancies throughout the world [1]. It is one of the leading causes of maternal and perinatal morbidity and mortality [2]. Current approaches to preeclampsia

