

Differences in Pregnancy Associated Plasma Protein-A (PAPP-A) Levels in Second and Third Trimesters in Early Onset Preeclampsia and Normotensive Pregnancy

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Abstract

Introduction: Preeclampsia is a hypertensive condition that occurs after 20 weeks of gestation accompanied by target organ damage. Complications of preeclampsia can cause intrauterine fetal growth retardation, and placental hypoperfusion, even in the most serious situations, namely termination of pregnancy and death of the fetus and/or mother. Pregnancy-associated plasma protein-A (PAPP-A) is a high molecular weight glycoprotein that is produced in the placenta and secreted into the maternal bloodstream. The sensitivity, specificity, and detection rate (predictive value) of PAPP-A were evaluated in multiple studies to evaluate their use as a diagnostic marker.

Aim: Proving differences in PAPP-A levels in the second and third trimesters in the incidence of early-onset preeclampsia and normotensive pregnancy.

Methods: An analytic observational study with a cross-sectional approach was carried out in the delivery room of RSUP Dr. Kariadi Semarang, Halmahera Health Center, Ngesrep Health Center, Bulu Health Center, and private midwife practice in Semarang City. The subjects of the study were six 2nd-trimester preeclampsia patients, fourteen 3rd-trimester preeclampsia patients, and twenty normotensive pregnancy patients who met the inclusion and exclusion criteria. Data were analyzed using Mann Whitney with a significance of $p < 0.05$

Results: There was a significant difference in PAPP-A levels ($p < 0.001$) between the preeclampsia and normotensive pregnancy groups, whereas PAPP-A levels were higher in the preeclampsia group. There were significant differences in PAPP-A levels ($p < 0.001$) between the 2nd-trimester preeclampsia, 3rd-trimester preeclampsia, and normotensive pregnancies, where the highest PAPP-A levels were found in the 2nd-trimester preeclampsia group.

Conclusion: There was a significant difference in PAPP-A levels between the second and third trimesters of early-onset preeclampsia compared to normotensive pregnancies, where PAPP-A levels were higher in the second and third trimesters of early-onset preeclampsia. Elevated PAPP-A levels in the second and third trimesters are associated with an increased risk of early-onset preeclampsia.

Keywords: PAPP-A, Early Onset Preeclampsia, Normotensive Pregnancy

Perbedaan Kadar *Pregnancy Associated Plasma Protein – A (PAPP-A)* Trimester II dan III pada kejadian Preeklampsia Awitan Dini dan Kehamilan Normotensi

ABSTRAK

LATAR BELAKANG: Preeklampsia adalah kondisi hipertensi yang terjadi setelah usia kehamilan 20 minggu disertai dengan kerusakan organ target. *Pregnancy-associated plasma protein-A (PAPP-A)* adalah glikoprotein dengan berat molekul tinggi yang diproduksi di plasenta dan disekresikan ke dalam aliran darah ibu. Sensitivitas, spesifisitas, dan tingkat deteksi (nilai prediktif) PAPP-A dievaluasi dalam berbagai penelitian untuk mengevaluasi penggunaannya sebagai penanda diagnostik untuk preeklampsia.

TUJUAN: untuk membuktikan perbedaan kadar PAPP-A pada trimester kedua dan ketiga pada kejadian preeklampsia onset dini dan kehamilan normotensi

METODE: Penelitian observasional analitik dengan pendekatan cross-sectional dilakukan di ruang bersalin RSUP Dr. Kariadi Semarang. Subyek penelitian adalah enam pasien preeklampsia trimester II, empat belas pasien preeklampsia trimester III, dan dua puluh pasien kehamilan normotensi yang memenuhi kriteria inklusi dan eksklusi. Data dianalisis menggunakan Mann Whitney dengan signifikansi $p < 0,05$.

HASIL: Terdapat perbedaan kadar PAPP-A yang signifikan ($p < 0,001$) antara kelompok kehamilan preeklampsia dan normotensi, sedangkan kadar PAPP-A lebih tinggi pada kelompok preeklampsia. Terdapat perbedaan bermakna kadar PAPP-A ($p < 0,001$) antara preeklampsia trimester 2, preeklampsia trimester 3, dan kehamilan normotensi, dimana kadar PAPP-A tertinggi terdapat pada kelompok preeklampsia trimester 2

KESIMPULAN: Peningkatan kadar PAPP-A pada trimester kedua dan ketiga dikaitkan dengan peningkatan risiko preeklampsia dini

Kata Kunci: PAPP-A, Preeklampsia Onset Dini, Kehamilan Normotensif