

**PERBEDAAN KADAR *TUMOR NECROSIS FACTOR ALPHA* &
INTERLEUKIN 6 PADA *EARLY ONSET PREEKLAMPSIA*
BERAT, LATE ONSET PREEKLAMPSIA BERAT
DAN HAMIL NORMAL**

TESIS



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DAN HAMIL NORMAL**

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Pendahuluan : Preeklamsia merupakan kumpulan gejala atau sindrom yang meliputi hipertensi disertai dengan gangguan organ multisistem yang terjadi pada kehamilan. Etiologi pasti mengenai preeklamsia sampai saat ini masih belum diketahui. Kondisi patologis tersebut sampai sekarang masih merupakan salah satu penyebab utama morbiditas dan mortalitas ibu hamil. Berdasarkan kriteria patofisiologi waktu terjadinya preeklamsia dikenal 2 tipe preeklamsia yaitu : *early onset* preeklamsia dan *late onset* preeklamsia. Waktu terjadinya *early onset* pada < 34 minggu sedangkan pada *late onset* terjadi ≥ 34 minggu. Secara umum penyebab gagalnya invasi trofoblas berperan dalam manifestasi gejala preeklamsia. Terdapat bukti yang berkembang bahwa patogenesis penyakit dimediasi oleh mekanisme imun, karena preeklamsia ditandai oleh ketidakseimbangan antara sitokin proinflamasi dan antiinflamasi. Salah satu kemungkinan mekanisme preeklamsia adalah melalui stimulasi monosit dan neutrofil untuk menghasilkan *TNF-α* sehingga mengakibatkan gangguan endotel. Karena itu, peningkatan serum *TNF-α* menjadi bagian dari patologi preeklamsia. Sitokin bersifat imunoregulatori yang mungkin berperan dalam patogenesis preeklamsia. Reseptor sitokin tipe 1 (*interleukin-6*), dan reseptor sitokin tipe 2 (*TNF-α*) umumnya diproduksi dalam proses inflamasi yang diakibatkan oleh preeklamsia.

Tujuan Penelitian : Mengetahui perbedaan kadar serum *TNF-α* dan *IL 6* pada *early onset* preeklamsia berat, *late onset* preeklamsia berat dan kehamilan normal

Materi dan metode : Jenis penelitian ini adalah observasional analitik dengan pendekatan *cross sectional comparative study* yang membandingkan kadar *TNF-α*

dan IL-6 antara pasien *early onset* preeklamsia berat, *late onset* preeklamsia berat dengan kehamilan normal pada 20 responden dengan menggunakan alat ukur Human Tumor Necrosis Factor α dan Human Interleukin 6 dengan metode ELISA.

Hasil : Rerata kadar serum *TNF- α* pada *early onset* PEB yaitu $93,64 \pm 8,36$ pg/mL, pada *late onset* PEB yaitu $93,51 \pm 30,39$ pg/mL, dan pada kehamilan normal $76,66 \pm 16,62$ pg/mL. Rerata kadar serum *IL-6* pada *early onset* PEB yaitu $82,40 \pm 5,42$ pg/mL, pada *late onset* PEB yaitu $91,48 \pm 24,78$ pg/mL, dan pada kehamilan normal $80,26 \pm 19,98$ pg/mL.

Kesimpulan : Terdapat perbedaan rerata kadar serum *TNF- α* antara *early onset* PEB, *late onset* PEB, dan kehamilan normal ($p < 0,05$). Terdapat perbedaan rerata kadar serum *IL-6* antara *early onset* PEB, *late onset* PEB, dan kehamilan normal ($p < 0,05$).

Kata Kunci : preeklamsia berat, *early onset*, *late onset*, *TNF- α* , *Interleukin-6*, kehamilan normal



**DIFFERENCES TUMOR LEVELS NECROSIS FACTOR ALPHA &
INTERLEUKIN 6 ON EARLY ONSET PREEKLAMPSIA
WEIGHT, PREEKLAMPSIA LATE ONSET WEIGHT
AND NORMAL PREGNANT**

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Introduction : Preeclampsia is a collection of symptoms or syndromes that include hypertension accompanied by multisystem organ disorders that occur in pregnancy. The exact etiology of preeclampsia remains unknown. Until now, this pathological condition is still one of the main causes of morbidity and mortality of pregnant women. Based on the pathophysiological criteria when preeclampsia occurs, there are two types of preeclampsia, namely: early onset preeclampsia and late onset preeclampsia. The time of early onset was <34 weeks, while the late onset occurred \geq 34 weeks. In general, the cause of failed trophoblast invasion plays a role in the manifestation of symptoms of preeclampsia. There is growing evidence that disease pathogenesis is mediated by immune mechanisms, because preeclampsia is characterized by an imbalance between proinflammatory and anti-inflammatory cytokines. One of the possible mechanisms of preeclampsia is through stimulation of monocytes and neutrophils to produce *TNF- α* resulting in endothelial disorders. Therefore, the increase in serum *TNF- α* is part of the pathology of preeclampsia. Cytokines are immunoregulatory which may play a role in the pathogenesis of preeclampsia. Type 1 cytokine receptors (*interleukin-6*) and type 2 cytokine receptors (*TNF- α*) are generally produced in the inflammatory process caused by preeclampsia.

Objective : Knowing the differences in serum *TNF- α* and *IL 6* levels in the early onset of severe preeclampsia, late onset of severe preeclampsia and normal pregnancy.

Material and methods : This type of research using an analytic observational with a cross sectional comparative study approach that compares *TNF- α* and *IL-6* levels between severe early onset preeclampsia, severe late onset preeclampsia and normal

pregnancy in 20 respondents using *Human Tumor Necrosis Factor α* and *Human Interleukin 6* measuring instruments by ELISA method.

Results : The mean *TNF- α* serum level in early onset severe preeclampsia was 93.64 ± 8.36 pg / mL, at late onset severe preeclampsia was 93.51 ± 30.39 pg / mL, and in normal pregnancy 76.66 ± 16.62 pg / mL. The mean serum *IL-6* level in early onset severe preeclampsia was 82.40 ± 5.42 pg / mL, at late onset severe preeclampsia was 91.48 ± 24.78 pg / mL, and in normal pregnancy 80.26 ± 19.98 pg / mL.

Conclusion : There was a difference in mean *TNF- α* serum levels between early onset severe preeclampsia, late onset severe preeclampsia, and normal pregnancy ($p < 0.05$). There was a difference in mean serum *IL-6* levels between early onset severe preeclampsia, late onset severe preeclampsia, and normal pregnancy ($p < 0.05$).

Keywords: *severe preeclampsia, early onset, late onset, TNF- α , Interleukin-6, normal pregnancy*

