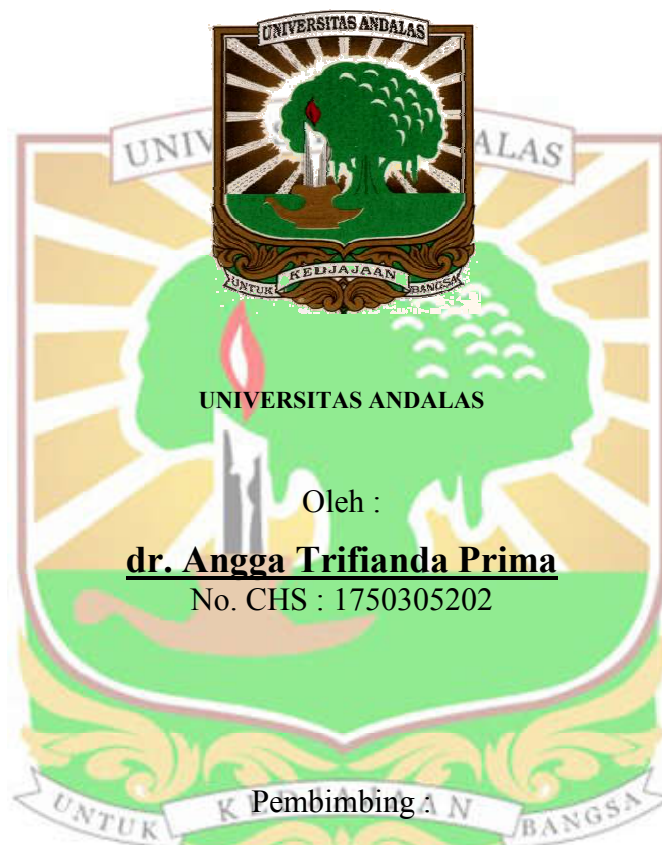


**HUBUNGAN ANTARA KADAR *INTERLEUKIN-6* BILASAN PERITONEUM
DENGAN DERAJAT NYERI, PERLENGKETAN DAN SKOR
ENDOMETRIOSIS FERTILITY INDEX PADA
PENDERITA ENDOMETRIOSIS**

TESIS



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ABSTRAK

HUBUNGAN ANTARA KADAR *INTERLEUKIN-6* BILASAN PERITONEUM DENGAN DERAJAT NYERI, PERLENGKETAN DAN SKOR *ENDOMETRIOSIS FERTILITY INDEX* PADA PENDERITA ENDOMETRIOSIS

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Pendahuluan : Endometriosis merupakan kelainan ginekologi jinak yang ditandai dengan adanya jaringan endometrium dan stroma di luar rongga uterus. Beberapa teori menjelaskan terjadinya endometriosis salah satunya adalah teori inflamasi. Lesi endometriosis dapat menghasilkan sitokin inflamasi sehingga terjadi peningkatan kadarnya dalam cairan peritoneum. Proses ini menimbulkan gangguan pada anatomi pelvis, fungsi ovarium, produksi prostaglandin dan produksi faktor pertumbuhan yang menimbulkan keluhan nyeri, perlengketan dan infertilitas. *Interleukin-6* (IL-6) merupakan sitokin inflamasi yang penting dan potensial dalam membantu diagnosis endometriosis. Sitokin ini bersifat sebagai makrofag aktifator yang dapat merangsang proliferasi sel endometrium dan dapat memodulasi sekresi sitokin lain seperti IL-10, IL-13 dan TNF- α yang memperkuat proses inflamasi. Kadar IL-6 yang tinggi di peritoneum dikaitkan dengan endometriosis stadium lanjut yang berhubungan dengan nyeri, perlengketan pelvis berat dan efek embriotoksik yang menyebabkan infertilitas. Efek sitokin IL-6 baik lokal maupun sistemik terhadap pertumbuhan lesi endometriosis dan gejala yang ditimbulkan sangat besar sehingga sitokin ini dianggap marker penting

Tujuan Penelitian : Penelitian ini bertujuan untuk mengetahui hubungan faktor inflamasi lokal (IL-6 bilasan peritoneum) yang diperoleh saat tindakan laparoskopi dengan derajat nyeri, derajat perlengketan dan korelasi dengan skor *Endometriosis Fertility Index* (EFI) pada penderita endometriosis.

Materi dan metode : Jenis penelitian ini adalah analitik kuantitatif dengan desain *cross sectional study* yang dilakukan terhadap 22 orang penderita endometriosis. Sebelum tindakan laparoskopi, dilakukan anamnesis *historical factor* (skor EFI) dan penilaian derajat nyeri dengan pengisian kuesioner. Intraoperatif dilakukan pengambilan bilasan peritoneum dimana jika ada cairan peritoneum dapat langsung diambil dengan spuit 10 cc sebanyak 3-5 cc. Jika tidak ditemukan cairan, dilakukan pembilasan peritoneum menggunakan cairan NaCl 0,9% kemudian cairan disedot kembali ke dalam spuit 10 cc sebanyak 3-5 cc, kemudian dilanjutkan dengan pemeriksaan menggunakan *RayBio Human IL-6 ELISA Kit*. Saat tindakan laparoskopi dilakukan penilaian derajat perlengketan organ pelvis dengan melihat bentuk dan bagaimana perlengketan dapat dipisahkan. *Surgical factor* (skor EFI) dinilai intraoperatif untuk memperoleh data *least function score*,

AFS endometriosis score serta *AFS total score*. Analisis statistik untuk menilai kemaknaan menggunakan *paired t test* dan uji korelasi.

Hasil : Didapatkan rerata umur responden yaitu $34,86 \pm 6,11$ tahun, 81,8% nulipara, 100% sudah menikah, 100% mengalami infertilitas baik primer maupun sekunder dan 81,8% tidak terdapat riwayat *prior pregnancy*. Pada penelitian didapatkan kadar IL-6 bilasan peritoneum lebih tinggi pada derajat nyeri berat ($P < 0,05$) dibandingkan sedang dengan hasil $32,58 \pm 7,31$ pg/ml dan $25,39 \pm 2,70$ pg/ml. Kadar IL-6 ditemukan lebih tinggi pada perlengketan derajat tiga dibandingkan derajat dua ($P < 0,05$) dengan hasil $32,78 \pm 6,65$ pg/ml dan $23,86 \pm 2,18$ pg/ml. Rerata kadar IL-6 bilasan peritoneum adalah $30,75 \pm 7,01$ pg/ml dan skor EFI $4,09 \pm 2,09$. Korelasi kadar IL-6 bilasan peritoneum dengan skor EFI menunjukkan nilai $r = -0,448$ yang memiliki kekuatan sedang dan berpola negatif artinya semakin tinggi kadar IL-6 bilasan peritoneum maka semakin rendah skor EFI ($P < 0,05$).

Kesimpulan : Terdapat hubungan kadar IL-6 bilasan peritoneum penderita endometriosis dengan derajat nyeri dan derajat perlengketan dimana kadar IL-6 ditemukan lebih tinggi pada derajat nyeri berat dibanding sedang ($P < 0,05$), lebih tinggi pada perlengketan derajat tiga dibandingkan derajat dua ($P < 0,05$). Terdapat korelasi kadar IL-6 bilasan peritoneum dengan skor EFI ($P < 0,05$) dengan hasil analisis kekuatan sedang berpola negatif ($r = -0,448$).

Kata Kunci : Endometriosis, Interleukin-6, Derajat nyeri, Derajat perlengketan, Skor *Endometriosis Fertility Index*.



ABSTRACT

CORRELATION BETWEEN LEVELS OF INTERLEUKIN-6 IN PERITONEAL FLUID WITH DEGREE OF PAIN, ADHESION, AND ENDOMETRIOSIS FERTILITY INDEX SCORE IN ENDOMETRIOSIS

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Introduction : Endometriosis is a benign gynecological disorder characterized by the presence of endometrial tissue and stroma outside the uterine cavity. Several theories have been proposed to explain the occurrence of endometriosis, one of which is the theory of inflammation. Endometriosis lesions can produce inflammatory cytokines, resulting in their increased levels in the peritoneal fluid. This process causes disruption in pelvic anatomy, ovarian function, prostaglandin production and growth factor production that causes pain, adhesions and infertility. Interleukin-6 (IL-6) is an important and potential inflammatory cytokine in assisting the diagnosis of endometriosis. These cytokines act as activating macrophages that can stimulate endometrial cell proliferation and modulate the secretion of other cytokines such as IL-10, IL-13 and TNF- α which augments the inflammatory process. High levels of IL-6 in the peritoneum are related to advanced endometriosis associated with pain, severe pelvic adhesions and embryotoxic effects leading to infertility. The effect of IL-6, both local and systemic, on the growth of endometriosis lesions and its associated symptoms is great that this cytokine is considered an important marker.

Objective : This study aims to determine the relationship between local inflammatory factors (IL-6 in peritoneal fluid) obtained during laparoscopy with the degree of pain, the degree of adhesions and the correlation with the Endometriosis Fertility Index (EFI) score in endometriosis patients.

Material and methods : This is a quantitative analytic research with a cross sectional study design which was conducted on 22 patients with endometriosis. Prior to the laparoscopy, historical factor (EFI score) was recorded and an assessment of the pain scale was performed by filling out a questionnaire. Intraoperatively, the peritoneal fluid was obtained. If the peritoneal fluid was found, it was taken directly with a volume of 3-5 cc using 10 cc syringe. If no fluid was found, peritoneal rinsing was performed using 0.9% NaCl fluid, then 3-5 cc fluid was aspirated using a 10 cc syringe. Subsequently, an examination was carried out using the RayBio Human IL-6 ELISA Kit. During the laparoscopy procedure, the degree of adhesion of the pelvic organs was assessed by looking at the shape and how the adhesions can be separated. Surgical factor (EFI score) was assessed intraoperatively to obtain data for the least function score, AFS

endometriosis score and AFS total score. Statistical analysis was performed using paired t test and correlation test.

Results : The mean age of the respondents was 34.86 ± 6.11 years, 81.8% were nulliparous, 100% were married, 100% experienced both primary and secondary infertility and 81.8% had no prior pregnancy history. In the study, it was found that IL-6 levels of peritoneal fluid were higher in patients with the degree of severe pain ($P < 0.05$) compared to moderate with the results of 32.58 ± 7.31 pg / ml and 25.39 ± 2.70 pg / ml. IL-6 levels were found to be higher in grade three adhesions than grade two ($P < 0.05$) with results of 32.78 ± 6.65 pg / ml and 23.86 ± 2.18 pg / ml. The mean peritoneal fluid IL-6 levels were 30.75 ± 7.01 pg / ml and the mean EFI score was 4.09 ± 2.09 . The correlation of IL-6 levels in peritoneal fluid with EFI score showed a value of $r = -0.448$ which had moderate strength and a negative pattern, indicating that the higher the IL-6 level of peritoneal fluid, the lower the EFI score ($P < 0.05$).

Conclusion : There is a relationship between IL-6 levels of peritoneal fluid in endometriosis with the degree of pain and the degree of adhesion, where IL-6 levels were found to be higher in the degree of severe than moderate pain ($P < 0.05$), higher in third degree adhesions than second degree ($P < 0.05$). There was a correlation between IL-6 levels of peritoneal fluid with EFI score ($P < 0.05$) with a negative pattern of moderate strength analysis results ($r = -0.448$).

Keywords: Endometriosis, Interleukin-6, Degree of Pain, Degree of Adhesion, Endometriosis Fertility Index Score

