

ABSTRAK

Latar Belakang: Kemoterapi dan radioterapi dapat merusak folikel ovarium sehingga teknik preservasi fertilitas seperti vitrifikasi dan transplantasi jaringan diperlukan, meskipun kehilangan folikel pascatransplantasi masih menjadi hambatan. Penelitian ini mengevaluasi hubungan ekspresi gen dan protein IL-6 dengan rekrutmen folikel setelah transplantasi jaringan ovarium pada membran korioalantois (CAM) telur ayam.

Tujuan penelitian: Mengetahui pengaruh vitrifikasi dan transplantasi jaringan ovarium pada CAM terhadap ekspresi gen dan protein IL-6 serta korelasinya terhadap rekrutmen folikel.

Metode: Penelitian menggunakan sampel jaringan ovarium dari pasien perempuan usia 18–40 tahun dengan AMH terdeteksi yang menjalani operasi kista ovarium, kanker ovarium, atau kanker serviks di RSUP Dr. Sardjito sesuai kriteria inklusi dan eksklusi. Jaringan ovarium berukuran 4×4×1 mm dibagi menjadi tiga kelompok: fresh non-transplant, vitrifikasi non-transplant, dan vitrifikasi-transplant pada CAM telur ayam. Sampel kemudian dibuat paraffin blok untuk analisis histologis (HE) untuk menilai rekrutmen folikel, imunohistokimia IL-6, dan RT-PCR gen IL-6 sebagai marker inflamasi.

Hasil Penelitian: Kelompok vitrifikasi transplan mempunyai tingkat rekrutmen folikel lebih tinggi dibandingkan dengan kelompok *fresh* dan vitrifikasi non transplant ($p>0,05$). Peningkatan ekspresi protein IL-6 pada stroma ($p<0,05$) dan folikel ($p>0,05$), serta ekspresi gen IL-6 ($p<0,05$) pada kelompok vitrifikasi-transplan juga lebih tinggi dibandingkan dengan kelompok *fresh* dan vitrifikasi non transplant. Pada penelitian ini tidak menunjukkan adanya korelasi antara rekrutmen folikel terhadap ekspresi gen dan protein IL-6 ($p>0,05$).

Kesimpulan: Terdapat peningkatan ekspresi gen dan protein IL-6 yang signifikan pada jaringan ovarium pascavitrifikasi dan transplantasi pada CAM, meskipun tidak berkorelasi terhadap rekrutmen folikel.

Kata kunci: Preservasi fertilitas, transplantasi jaringan ovarium, membran korioalantois, aktivasi folikel, inflamasi.

ABSTRACT

Background: Chemotherapy and radiotherapy can damage ovarian follicles, making fertility preservation techniques such as ovarian tissue vitrification and transplantation necessary. However, post-transplant follicular loss remains a major challenge. This study evaluated the relationship between IL-6 gene and protein expression and follicular recruitment following ovarian tissue transplantation onto the chick chorioallantoic membrane (CAM).

Objective: To determine the effects of ovarian tissue vitrification and transplantation onto the CAM on IL-6 gene and protein expression and to assess their correlation with follicular recruitment.

Methods: Ovarian tissue samples were obtained from women aged 18–40 years with detectable anti-Müllerian hormone (AMH) levels who underwent surgery for ovarian cysts, ovarian cancer, or cervical cancer at Dr. Sardjito General Hospital and met the inclusion and exclusion criteria. Ovarian cortical tissue fragments measuring $4 \times 4 \times 1$ mm were allocated into three groups: fresh non-transplant, vitrified non-transplant, and vitrified-transplant on chick CAM. Tissue samples were processed into paraffin blocks for histological evaluation using hematoxylin and eosin (H&E) staining to assess follicular recruitment, immunohistochemical analysis of IL-6 protein expression, and RT-PCR analysis of IL-6 gene expression as an inflammatory marker.

Results: The vitrified-transplant group demonstrated a higher level of follicular recruitment compared with the fresh and vitrified non-transplant groups, although the difference was not statistically significant ($p > 0.05$). IL-6 protein expression in the stroma was significantly increased ($p < 0.05$), while IL-6 protein expression in follicles was higher but not statistically significant ($p > 0.05$). IL-6 gene expression was significantly elevated in the vitrified-transplant group compared with the fresh and

vitriified non-transplant groups ($p < 0.05$). No significant correlation was found between follicular recruitment and either IL-6 gene or protein expression ($p > 0.05$).

Conclusion: Ovarian tissue vitrification followed by transplantation onto the CAM resulted in a significant increase in IL-6 gene and protein expression. However, these increases were not associated with follicular recruitment.