

**HUBUNGAN EKSPRESI Ki-67 TERHADAP TUMOR INFILTRATING
LYMPHOCYTES (TILs) PADA PASIEN KARSINOMA
MAMMAE SUBTIPE LUMINAL B HER2 NEGATIVE
DI RSUD PROF. Dr. MARGONO SOEKARJO**

ABSTRAK

Latar Belakang: Karsinoma mammae merupakan salah satu kanker dengan angka morbiditas dan mortalitas tinggi pada perempuan. Pada sub tipe luminal B HER2-negative memiliki karakteristik proliferasi yang tinggi, salah satunya ditunjukkan melalui peningkatan ekspresi Ki-67. Selain itu, respons imun yang anti terhadap tumor dapat dinilai melalui *Tumor Infiltrating Lymphocytes* (TILs). Walaupun secara teori proliferasi sel kanker yang tinggi berpotensi meningkatkan aktivitas imunologis, hubungan antara ekspresi Ki-67 dengan densitas TILs pada sub tipe luminal B HER2-negative masih belum konsisten dan memerlukan penelitian lebih lanjut. **Tujuan:** Mengetahui hubungan antara tingkat ekspresi Ki-67 dengan densitas *Tumor Infiltrating Lymphocytes* (TILs) pada pasien karsinoma mammae sub tipe luminal B HER2-negative di RSUD Prof. Dr. Margono Soekarjo. **Metodologi:** Penelitian ini menggunakan desain observasional analitik dengan pendekatan *cross-sectional*. Sampel diambil menggunakan teknik *total sampling* dari rekam medis pasien karsinoma mammae luminal B HER2-negative periode 2023–2024. Data meliputi hasil imunohistokimia Ki-67 serta densitas TILs berdasarkan pemeriksaan histopatologi. Analisis hubungan dilakukan menggunakan uji Chi-Square dengan tingkat signifikansi $p < 0,05$. **Hasil:** Sebanyak 89 sampel memenuhi kriteria inklusi. Mayoritas pasien memiliki ekspresi Ki-67 tinggi (61,8%) dan kategori TILs rendah (43,8%). Hasil uji Chi-Square menunjukkan tidak terdapat hubungan bermakna antara ekspresi Ki-67 dan TILs ($p = 0,410$). Pola distribusi TILs yang heterogen dan rendahnya karakter imunogenik sub tipe luminal B diduga berperan dalam ketidakhadiran hubungan signifikan. **Kesimpulan:** Tidak terdapat hubungan signifikan antara ekspresi Ki-67 dan densitas TILs pada pasien karsinoma mammae sub tipe luminal B HER2-negative. Hal ini mengindikasikan bahwa tingginya proliferasi sel kanker tidak selalu mencerminkan tingginya infiltrasi sel imun pada tumor sub tipe tersebut. Penelitian lanjutan dengan ukuran sampel lebih besar dan variabel tambahan disarankan untuk memperoleh gambaran yang lebih komprehensif.

Kata kunci: Ki-67, *Tumor Infiltrating Lymphocytes*, Luminal B HER2-negative, Karsinoma mammae.

**RELATIONSHIP BETWEEN KI-67 EXPRESSION AND TUMOR
INFILTRATING LYMPHOCYTES (TILs) IN PATIENTS WITH LUMINAL B
HER2-NEGATIVE BREAST CARCINOMA AT RSUD PROF. DR.
MARGONO SOEKARJO**

ABSTRACT

Background: Breast carcinoma remains one of the leading causes of cancer-related morbidity and mortality in women. The luminal B HER2-negative subtype is characterized by high proliferative activity, commonly reflected by elevated Ki-67 expression. Meanwhile, antitumor immune response can be assessed through Tumor Infiltrating Lymphocytes (TILs). Although high proliferation may theoretically increase immune activation, the relationship between Ki-67 expression and TIL density in luminal B HER2-negative tumors remains uncertain and requires further investigation. **Objective:** To determine the relationship between Ki-67 expression levels and Tumor Infiltrating Lymphocyte (TILs) density in patients with luminal B HER2-negative breast carcinoma at RSUD Prof. Dr. Margono Soekarjo. **Methods:** This analytic observational study used a cross-sectional design. Samples were obtained using a total sampling technique from medical records of patients diagnosed with luminal B HER2-negative breast carcinoma during 2023–2024. Data included Ki-67 immunohistochemistry results and TIL density from histopathological examination. Statistical analysis employed the Chi-Square test with a significance level of $p < 0,05$. **Results:** A total of 89 samples met the inclusion criteria. Most patients exhibited high Ki-67 expression (61.8%) and low TIL density (43.8%). Chi-Square analysis showed no significant association between Ki-67 expression and TIL density ($p = 0.410$). The absence of a significant relationship may be related to the low immunogenic characteristics and heterogeneous TIL distribution typical of luminal B tumors. **Conclusion:** There is no significant relationship between Ki-67 expression and TIL density in luminal B HER2-negative breast carcinoma. These findings suggest that high tumor proliferation does not necessarily correlate with increased immune cell infiltration in this subtype. Further studies with larger sample sizes and additional variables are recommended.

Keywords: Ki-67; Tumor Infiltrating Lymphocytes; Luminal B; HER2-negative; Breast carcinoma.