

ABSTRAK

Hubungan antara Ekspresi AEG-1 dan NF- κ B/p65 Pada *Triple Negative Breast Cancer Operable* Dengan *Disease Free Survival*

Latar belakang: Kanker payudara di Indonesia merupakan kanker yang paling sering, baik pada wanita maupun pada semua jenis kelamin. Kanker payudara terdiri dari bermacam subtype (*luminal A, luminal B, Triple Negative Breast Cancer (TNBC)*), dan HER2 enriched. Dibandingkan dengan kanker payudara subtype *hormonal receptor (HR)* positif, TNBC memiliki prognosis yang lebih buruk. Di antara onkogen, *Astrocyte-Elevated Gene-1 (AEG-1)* memainkan peran penting dalam mengatur perkembangan dan progresifitas tumor termasuk transformasi, penghindaran apoptosis, kemoresistensi, angiogenesis, invasi dan metastasis dan secara negatif mempengaruhi *Disease Free Survival (DFS)* pasien. Jalur pensinyalan yang pertama kali diaktifkan oleh AEG-1 adalah NF- κ B. Kanker payudara triple negative (TNBC) merupakan subtype kanker payudara dengan tingkat pensinyalan NF κ B yang tinggi. Peningkatan ekspresi NF- κ B/p65 berhubungan dengan ukuran tumor yang lebih besar, grade yang lebih tinggi, dan *Disease Free Survival (DFS)* yang rendah.

Tujuan: Menganalisis hubungan antara ekspresi AEG-1 dan NF- κ B terhadap *Disease Free Survival (DFS)* pada *Triple Negative Breast Cancer (TNBC) operable*.

Metode Penelitian: Penelitian ini merupakan penelitian analitik non eksperimental dengan desain penelitian cohort retrospektif dan cohort prospektif. Ekspresi AEG-1 pada specimen jaringan tumor diperiksa secara *quantitative Real-Time Polymerase Chain Reaction (qRT-PCR)*. Ekspresi NF- κ B/p65 pada specimen jaringan tumor diperiksa secara *quantitative Real-Time Polymerase Chain Reaction (qRT-PCR)*. *Disease free survival* adalah periode waktu dimana tidak ditemukan lesi baru setelah operasi dilakukan yang dievaluasi dengan pemeriksaan penunjang pada lokoregional maupun metastasis jauh.

Hasil Penelitian: Sampel penelitian berasal dari 54 pasien dengan 26 pasien (48,1 %) yang memiliki ekspresi AEG-1 tinggi dan 28 pasien (51,9 %) yang memiliki ekspresi AEG-1 rendah. 33 pasien (61,1%) memiliki ekspresi NF- κ B/p65 tinggi dan 21 pasien (38,9%) memiliki ekspresi NF- κ B/p65 rendah. Terdapat hubungan yang signifikan antara ekspresi AEG-1 dengan ekspresi NF- κ B/p65. ($p = 0,006(p < 0,05)$). Terdapat hubungan yang signifikan antara ekspresi AEG-1 dan NF- κ B/p65 dengan DFS. ($p = 0,001$ dan $p = 0,000$ secara berurutan)

Kesimpulan: Ekspresi AEG-1 berhubungan dengan ekspresi NF- κ B/p65. Ekspresi AEG-1 dan NF- κ B/p65 berhubungan signifikan dengan DFS.

Kata Kunci: *Astrocyte Elevated Gene-1 (AEG-1), NF- κ B/p65, Triple Negative Breast Cancer (TNBC) Operable, Disease Free Survival.*

ABSTRACT

Relationship between AEG-1 and NF- κ B/p65 Expression In Operable Triple Negative Breast Cancer With Disease Free Survival

Background: Breast cancer in Indonesia is the most common cancer, both in women and in all genders. Breast cancer consists of various subtypes (luminal A, luminal B, Triple Negative Breast Cancer (TNBC), and HER2 enriched. Compared with hormonal receptor (HR) positive subtype breast cancer, TNBC has a worse prognosis. Among the oncogenes, Astrocyte- Elevated Gene-1 (AEG-1) plays an important role in regulating tumor development and progression including transformation, evasion of apoptosis, chemoresistance, angiogenesis, invasion and metastasis and negatively affects the Disease Free Survival (DFS) of patients AEG-1 is NF- κ B. Triple negative breast cancer (TNBC) is a subtype of breast cancer with high levels of NF κ B signaling. Increased expression of NF- κ B/p65 is associated with larger tumor size, higher grade, and Disease Free Survival. (DFS) is low.

Purpose: Analyzing the relationship between AEG-1 and NF- κ B expression on Disease Free Survival (DFS) in operable Triple Negative Breast Cancer (TNBC).

Subject and Methods: This research is a non-experimental analytical study with a retrospective cohort and prospective cohort research design. AEG-1 expression in tumor tissue specimens was examined using quantitative Real-Time Polymerase Chain Reaction (qRT-PCR). NF- κ B/p65 expression in tumor tissue specimens was examined using quantitative Real-Time Polymerase Chain Reaction (qRT-PCR). Disease free survival is the time period where no new lesions are found after surgery, which is evaluated by supporting examinations for locoregional or distant metastases.

Results: The research samples came from 54 patients with 26 patients (48.1%) having high AEG-1 expression and 28 patients (51.9%) having low AEG-1 expression. 33 patients (61.1%) had high NF- κ B/p65 expression and 21 patients (38.9%) had low NF- κ B/p65 expression. There is a significant relationship between AEG-1 expression and NF- κ B/p65 expression. ($p = 0.006(p < 0.05)$). There was a significant relationship between AEG-1, NF- κ B/p65 expression and DFS. ($p = 0.001$ and $p = 0.000$ respectively)

Conclusion: AEG-1 expression is associated with NF- κ B/p65 expression. AEG-1 and NF- κ B/p65 expression were significantly associated with DFS.

Keywords: *Astrocyte Elevated Gene-1 (AEG-1), NF- κ B/p65, Triple Negative Breast Cancer (TNBC) Operable, Disease Free Survival.*