

ABSTRAK

Hubungan antara Ekspresi mTOR dengan Stadium Prognostik pada Karsinoma Payudara Operabel

Kamila Muyasarah¹, R. Artanto Wahyono², Hanggoro Tri Rinonce³

¹Program Studi Kedokteran, Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan, Universitas Gadjah Mada, Yogyakarta, Indonesia

²Departemen Ilmu Bedah, Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan, Universitas Gadjah Mada, Yogyakarta, Indonesia

³Departemen Patologi Anatomi, Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan, Universitas Gadjah Mada, Yogyakarta, Indonesia

Latar Belakang: Karsinoma payudara merupakan kanker dengan morbiditas dan mortalitas tertinggi pada wanita di Indonesia. Banyak mekanisme yang mendasari dan mengatur progresi karsinoma payudara. Salah satu mekanisme terpenting dalam regulasi autofagi adalah melalui jalur PI3K/Akt/mTOR. mTOR dikenal sebagai salah satu biomarker protein yang sering dijumpai pada karsinoma payudara dan memengaruhi progresi tumor. Karsinoma payudara dapat diklasifikasikan dengan stadium prognostik klinis yang dikeluarkan AJCC pada 2018. Klasifikasi ini ditentukan dengan stadium anatomis, *grading* serta status ER, PR, HER2 untuk memprediksi prognostik yang lebih akurat serta menentukan pilihan terapi yang paling optimal.

Tujuan: Untuk mengetahui hubungan antara ekspresi protein mTOR dengan stadium anatomis, stadium prognostik klinis, status ER, PR dan HER2 karsinoma payudara operabel.

Metode: Penelitian ini merupakan studi *cross-sectional* menggunakan data sekunder dengan 83 subyek penderita karsinoma payudara yang menjalani operasi mastektomi di RSUP dr. Sardjito tahun 2010-2012. Data ekspresi mTOR dilihat melalui pengecatan imunohistokimia dan diinterpretasikan oleh ahli menjadi negatif (-), positif lemah (+), positif sedang (++), positif kuat (+++). Data stadium serta status ER, PR dan HER2 didapatkan dari data di Instalasi Patologi Anatomi dan *Cancer Registry* ICC RSUP dr. Sardjito. Hubungan antara ketiganya dianalisis dengan uji korelasi non-parametrik (*fisher-exact test* dan *linear-by-linear association*).

Hasil: Persentase subjek yang positif mTOR sebesar 90,4% dengan positif kuat (37,4%), positif sedang (37,4%) dan positif lemah (15,7%). Uji statistik untuk mengetahui hubungan dengan masing-masing stadium anatomis, stadium prognostik klinis, status ER, PR, dan HER2 menunjukkan nilai $p > 0,05$.

Simpulan: Tidak terdapat hubungan yang bermakna antara ekspresi mTOR dengan stadium anatomis, stadium prognostik klinis, status ER, PR dan HER2 pada karsinoma payudara operabel.

Kata kunci: karsinoma payudara operabel, mTOR, ER, PR, HER2, *tumor grade*, stadium prognostik

ABSTRACT

The Relation between mTOR Expression and Clinical Prognostic Stage of Operable Breast Carcinoma

Kamila Muyasarah¹, R. Artanto Wahyono², Hanggoro Tri Rinonce³

¹Medical Study Program, Faculty of Medicine, Public Health, and Nursing,
Universitas Gadjah Mada, Yogyakarta, Indonesia

²Department of Surgery, Faculty of Medicine, Public Health, and Nursing,
Universitas Gadjah Mada, Yogyakarta, Indonesia

³Department of Anatomical Pathology, Faculty of Medicine, Public Health, and
Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

Background: Breast carcinoma has the highest morbidity and mortality rate of cancer in Indonesian women. There are a lot of mechanisms that have roles to control the progress of breast cancer. One of the most important pathway is PI3K/Akt/mTOR signaling pathway. mTOR is known to be a protein that is often found in breast carcinoma and also influence the tumor progression. Breast carcinoma now can be classified with clinical prognostic stage by AJCC since 2018. This new staging is determined using anatomical stage, grading, ER, PR and HER2 status to predict more precision outcome and also help clinician to determine the most optimal treatment.

Objectives: To determine the relationship between the mTOR expression and anatomical stage, clinical prognostic stage, ER, PR, and HER2 status in operable breast cancer carcinoma.

Methods: This was a cross-sectional study using secondary data of 83 breast carcinoma patients who was operated with mastectomy in 2010-2012 at RSUP dr. Sardjito. Expression of mTOR was seen by immunohistochemical staining using the anti-mTOR antibody and interpreted by the pathology expert. Expression of mTOR is based on the intensity of the brown color in the nucleus or cytoplasm. The intensity of staining was rated as negative (-), weak (+), moderate (++), and strong. Stage, ER, PR, and HER2 status were collected from Pathology Anatomy Instalation and Cancer Registry ICC RSUP dr. Sardjito. The relationships between variables were tested with non-parametric correlation test (fisher-exact test and linear-by-linear association).

Results: The percentage of subjects who were positive with mTOR was 90,4% with interpretation of strong positive (37,4%), moderate (37,4%) and weak (15,7%). The statistical test to determine the relationship between the mTOR expression with anatomical staging, clinical prognostic staging, ER, PR, and HER2 status, each showed a value of $p > 0.05$.

Conclusions: Significant relationships were not found between the mTOR expression and anatomical stage, clinical prognostic stage, grading, ER, PR, HER2 status of operable breast carcinoma.

Keywords: operable breast carcinoma, mTOR, ER, PR, HER2, tumor grade, prognostic stage