

KORELASI KARAKTERISTIK ULTRASONOGRAFI DENGAN EKSPRESI mRNA GEN *STROMAL CELL-DERIVED FACTOR-1* PADA KANKER PAYUDARA

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INTISARI

Latar Belakang. Kanker payudara memiliki mortalitas dan morbiditas yang tinggi. Ultrasonografi (USG) merupakan modalitas diagnostik untuk mengevaluasi abnormalitas payudara. *Stromal cell-derived factor-1* (SDF-1) adalah kemokin yang merupakan chemoattractant dan diketahui berperan penting dalam angiogenesis, karsinogenesis, dan berhubungan dengan metastasis kanker payudara. Penggunaan level mRNA dengan metode qRT-PCR merupakan metode pemeriksaan marker biologi terbaru yang bersifat dinamis, sensitif dan mudah diaplikasikan serta bersifat sangat obyektif dan kuantitatif.

Tujuan. Untuk mengetahui korelasi antara karakteristik gambaran USG dengan ekspresi mRNA gen SDF-1 pada kanker payudara.

Bahan dan Metode. Penelitian ini merupakan penelitian observasional analitik rancangan *cross-sectional*, pengambilan sampel pada Januari 2015 – Desember 2015 dengan cara retrospektif. Penelitian dilakukan di RSUP Dr. Sardjito Yogyakarta pada bulan Desember 2016 – Juli 2017. Subjek penelitian adalah citra USG lesi ganas payudara dan hasil patologi anatomi serta ekspresi mRNA gen SDF-1. Dilakukan analisis deskriptif karakteristik subjek dan uji *Spearman* untuk mengetahui hubungan karakteristik USG dengan ekspresi mRNA gen SDF-1.

Hasil. Sampel terdiri dari 30 citra USG yang dilakukan uji korelasi terhadap ekspresi gen SDF-1 lesi payudara menggunakan uji *Spearman*. Karakteristik USG pola ekho memiliki nilai $p = 0,041$ dan $p = -0,374$ terhadap ekspresi mRNA gen SDF-1. Ekspresi mRNA SDF-1 positif (*overexpression*) pada 30 Subjek (100%). Gambaran USG yang nilai ekspresi gen SDF-1 tertinggi adalah ireguler (21.5), orientasi tidak sejajar (21.6), tepi *indistinct* (21.6), pola ekho hipoekhoik (24.3), gambaran posterior campuran (32.2), terdapat kalsifikasi (20.2) dan metastasis limfonodi (20.8).

Kesimpulan. Tidak didapatkan korelasi yang kuat antara karakteristik USG dengan ekspresi mRNA gen SDF-1. Didapatkan korelasi yang lemah gambaran posterior dengan ekspresi mRNA gen SDF-1 pada kanker payudara.

Kata kunci : Kanker payudara, *stroma-derivat factor-1*, mRNA, ultrasonografi

CORRELATION OF ULTRASOUND CHARACTERISTICS AND *STROMA- DERIVAT FACTOR 1* mRNA GEN EXPRESSION IN BREAST CANCER

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ABSTRACT

Background. Breast cancer has high mortality and morbidity. Ultrasonography (US) is a diagnostic modality for evaluating breast abnormalities. Stromal cell derived factor-1 (SDF-1) is a chemokine that is a chemoattractant and is known to have important role in angiogenesis, carcinogenesis, and is associated with breast cancer metastasis. The use of mRNA with qRT-PCR method is the latest method for examining biological markers which are dynamic, sensitive and easy to apply and are highly objective and quantitative.

Purpose. To determine the correlation between USG characteristics and mRNA SDF-1 gene expression in breast cancer.

Materials and Methods. This is an analytic observational study which was done cross-sectionally with retrospective sampling in January 2015 – December 2015. The study was conducted at RSUP Dr. Sardjito Yogyakarta in December 2016 - July 2017. Study subjects were ultrasound images of malignant breast lesions, pathology results, and mRNA SDF-1 gene expression. Descriptive analysis of subject characteristics and Spearman test was performed to determine the relationship of ultrasound characteristics and mRNA SDF-1 gene expression.

Results. The sample consisted of 30 ultrasound images which were correlated with mRNA SDF-1 gene expression using Spearman test. Ultrasound characteristic of echo pattern showed p value = 0,041 and $\rho = -0,374$ with mRNA SDF-1 gene expression. mRNA SDF-1 gene expression was positive (overexpression) in 30 subjects (100%). Higher SDF-1 value were found in ultrasound findings characteristics of irregular (21.5), non-parallel orientation (21.6), indistinct margin (21.6), hypoechoic echo pattern (24.3), mixed posterior features (32.2), calcification (20.2) and lymph node metastasis (20.8).

Conclusion. No evidence of strong correlation between ultrasound characteristic with mRNA SDF-1 gene expression. There was a weak correlation between ultrasound characteristic of echo pattern and mRNA SDF-1 gene expression in breast cancer.

Keywords: Breast cancer, *stroma- derivat factor- 1*, mRNA, Ultrasound