

Ekspresi Parathyroid Hormone-Related Protein (PTHrP) Sebagai Prediktor Metastasis Tulang Pada Karsinoma Payudara Subtipe Luminal = Expression of Parathyroid Hormone-Related Protein (PTHrP) As a Predictor of Bone Metastasis in Luminal Subtype of Breast Cancer

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Abstrak

Latar belakang: Kanker payudara (KPD) merupakan kanker yang paling sering terjadi pada wanita di seluruh dunia. Pada tahun 2020, KPD merupakan kasus kanker baru terbanyak di Indonesia dengan 65,858 kasus dan kematian 22,430 kasus. Namun, 90% kematian tersebut disebabkan karena proses metastasis. KPD sering bermetastasis ke tulang (70-80%) dalam kurun waktu 18-20 bulan setelah ditegakkannya diagnosis. PTHrP (Parathyroid Hormone-related Protein) diduga berhubungan dengan KPD yang bermetastasis ke tulang dan menandakan perjalanan klinis KPD yang lebih agresif. PTHrP dapat muncul sebagai alat diagnostik prabedah penting dan memberi gambaran kesintasan pasien yang mengalami metastasis tulang. Tujuan: Studi ini bertujuan untuk melihat hubungan ekspresi PTHrP dengan kejadian metastasis tulang pada karsinoma payudara subtipe luminal (KPD_L). Metode: Penelitian ini adalah penelitian analitik dengan desain studi case control. Sampel diambil dengan cara consecutive sampling. Kriteria inklusi adalah pasien KPD_L yang dilakukan biopsi atau operasi dan menjalani terapi di bagian Bedah Onkologi RSUP Dr. Cipto Mangunkusumo dan terdapat blok paraffin yang layak diproses. Data klinikopatologis seperti usia, indeks massa tubuh, ukuran tumor, keterlibatan KGB, dan stadium kanker diperoleh dari rekam medis. Dilakukan pewarnaan imunohistokimia dengan reagen AB75150 pada jaringan tumor payudara yang tersimpan dan tingkat ekspresi PTHrP disajikan dalam bentuk h-score. Analisis statistik dilakukan menggunakan program SPSS 27.0. Hasil: Didapatkan 45 sampel dengan 18 sampel dengan metastasis ke tulang dan 27 sampel tidak dengan metastasis ke tulang. Dari analisis data, didapatkan hubungan yang signifikan antara ekspresi PTHrP dengan kejadian metastasis tulang pada sampel KPD_L ($p = <0,001$) dengan OR 31,2 (IK95% 5,3 – 185). OS sampel dengan ekspresi PTHrP kuat adalah 20.5% dengan HR 7.3 (IK95% 2-26.6). Proporsi ekspresi PTHrP kuat pada metastasis tulang 83%. Proporsi ekspresi kuat PTHrP pada KPD_L sebesar 48.9 %. Kesimpulan: Peningkatan ekspresi PTHrP memiliki hubungan yang signifikan dengan kejadian metastasis tulang pada pasien KPD_L serta OS yang lebih rendah.

.....Introduction: Breast cancer (BC) is the most common cancer in women throughout the world. In 2020, BC was the largest number of new cancer cases in Indonesia with 65,858 cases and 22,430 deaths. However, 90% of deaths are caused by the metastatic process. BC often metastasizes to the bones (70-80%) within 18-20 months after diagnosis. PTHrP (Parathyroid Hormone-related Protein) is thought to be associated with BC that metastasizes to the bone and indicates a more aggressive clinical course of breast cancer. PTHrP may emerge as an important presurgical diagnostic tool and provide insight into the survival of patients presenting with bone metastases. There has been no research that states a specific relationship between PTHrP and luminal subtype BC. Objective: This study aims to examine the relationship between PTHrP expression and the incidence of bone metastases in luminal subtype BC. Methods: This research is an analytical study with a case control study design. Samples were taken by consecutive sampling according to the inclusion and exclusion criteria. Inclusion criteria were patients with luminal subtype BC who underwent

biopsy or surgery and underwent therapy in the Surgical Oncology department of Dr. RSUP. Cipto Mangunkusumo and there are paraffin blocks that are suitable for processing. Clinicopathological data such as age, body mass index, tumor size, lymph node involvement, and cancer stage were obtained from medical records. Immunohistochemical staining was carried out on stored breast tissue and the PTHrP expression level was presented in the form of an H-score. Statistical analysis was carried out using the SPSS 27.0 program. Results: There were 45 samples obtained with 18 samples with bone metastases and 27 samples without bone metastases. From data analysis, a significant relationship was found between PTHrP expression and the incidence of bone metastases in luminal subtype BC samples ($p = <0.001$) with OR 31.2 (95% CI 5.3 – 185). OS of samples with strong PTHrP expression was 20.5% with HR 7.3 (95% CI 2-26.6). The proportion of strong PTHrP expression in bone metastases was 83%. The proportion of strong expression of PTHrP in luminal subtype BC was 48.9%. Conclusion: Increased PTHrP expression has a significant association with the incidence of bone metastases in luminal subtype BC patients as well as lower OS.