

## ABSTRAK

**Latar belakang:** Meningioma merupakan tumor jinak yang paling sering ditemukan dari semua tumor otak dan sering disertai dengan abnormalitas tulang kalvaria berupa hyperostosis yang belum diketahui penyebabnya.

**Tujuan:** Penelitian ini bertujuan untuk menganalisa hubungan reseptor progesteron pada tumor meningioma dengan hyperostosis pada kalvaria.

**Metode:** Desain penelitian analitik Observasional dengan *cross sectional*, pasien dikumpulkan dengan *consecutive sampling* yang dilakukan mulai 2013 sampai 2015, melibatkan 37 pasien. Sampel dilakukan pemeriksaan CT Scan kepala untuk dikelompokkan kedalam 2 kelompok : kelompok hiperostosis dan kelompok non hiperostosis, dilanjutkan dengan pengambilan sampel darah untuk pemeriksaan kadar serum progesteron, estrogen, kolesterol dan kalsium darah yang dilakukan di Lab RSPAD semua pasien dilakukan craniotomy pengangkatan meningioma dan pengambilan kalvaria, sampel tumor dilakukan pemeriksaan immunohistokimia reseptor progesterone, reseptor estrogen dan Ki67 sedang kalvaria dilakukan pengukuran ketebalan tulang dan Osteoid dengan micrometer.

Analisis data menggunakan analisis bi variat dan multi variat.

**Hasil:** Penelitian dilakukan pada 37 pasien penderita meningioma, 81,1% pasien perempuan dan 18,9% laki laki dengan rerata usia 48 tahun. Analisis bivariat dilakukan untuk melihat hubungan antar variabel ditemukan pasien perempuan lebih banyak menderita hyperostosis sebanyak 94,7% dan didapatkan korelasi antara intensitas reseptor progesteron dengan hiperostosis berkorelasi negatif sedang ( $r = -0,34$ ;  $P = 0,09$ ). Analisis multivariat didapatkan faktor usia mempunyai korelasi negatif sedang (adjusted  $r = -0,52$ ,  $p = 0,002$ ) dengan ketebalan osteoid yang independen pada kelompok hyperostosis. Korelasi negatif lemah ( $r_{\text{adjusted}} = -0,15$ ,  $p = 0,55$ ) ditemukan antara reseptor progesteron dengan ketebalan osteoid pada kelompok hiperostosis.

**Kesimpulan:** Intensitas reseptor progesteron tidak mempunyai korelasi negatif dengan ketebalan Osteoid dan kejadian hiperostosis pada penderita meningioma.

**Keyword :** Meningioma,, reseptor progesteron, , osteoid, hiperostosis

## ABSTRACT

**Background:** Meningioma is the most commonly found benign tumor of all brain tumors and is often accompanied by calvaria abnormality in the form of hyperostosis whose cause is yet to be known.

**Purpose:** This study was aimed to analyze the relation of progesterone receptor in meningioma tumor with hyperostosis in calvaria.

**Method:** The research design was analytic observational with cross sectional. Patients were collected by purposive sampling, which was performed from 2013 to 2015, involving 37 patients. Selected samples were given head CT Scan to group them into 2 groups, hyperostosis and non-hyperostosis, following by blood sample collection to check progesterone, estrogen, cholesterol and Ca levels in the laboratory of RSPAD. Selected patients were given craniotomy. During surgery, tumor sample and calvaria were collected. Meningioma samples were examined using immunohistochemical performed on progesterone receptors and estrogen receptors and Ki 67. Bones were measured for thickness and osteoid measurement using micrometer.

Data analysis used bivariate and multivariate analyses.

**Result:** The study was performed on 37 meningioma patients, 81.1% patients were female and 18.9% were male with average age of 48 years old. Bivariate analysis was performed to see inter-variable relation. Female patients have hyperostosis more often 94.7%. The correlation between intensity of progesterone receptor and hyperostosis was moderately negative ( $r=-0,34$ ;  $P=0,09$ ). Multivariate analysis found ages factor has moderate negative correlation (adjusted  $r = -0,52$ ,  $p= 0,002$ ) with thickness of osteoid as independent factor on hyperostosis group. Weak negative correlation was found between progesterone receptor with thickness of osteoid ( $r_{adjusted} = 0,15$ ,  $p 0,55$ ) on hyperostosis group.

**Conclusion:** The intensity of progesterone receptor had negative correlation with the thickness of osteoid and hyperostosis in meningioma.

**Keywords:** Meningioma, Progesterone receptor, osteoid, hyperostosis