

## INTISARI

**Latar Belakang** : Meningioma merupakan tumor intrakranial primer terbanyak kedua setelah glioma. Beberapa penelitian epidemiologi mengenai meningioma menyebutkan meningioma lebih sering terjadi pada wanita setelah masa pubertas. Pertumbuhan meningioma ditemukan meningkat pada masa kehamilan dan fase luteal namun mengecil setelah kelahiran. Berdasarkan hal-hal tersebut, faktor hormonal dianggap memiliki peran penting dalam pertumbuhan meningioma. Ekspresi reseptor progesteron (PR) ditemukan tinggi pada meningioma jinak (derajat I WHO) namun ekspresi PR berbanding terbalik dengan derajat meningioma. Berbagai penelitian telah mengkaji ekspresi PR dalam jaringan meningioma dengan metode imunohistokimia dan Polymerase Chain Reaction (PCR) namun penelitian yang mengkaji ekspresi PR dalam darah belum ditemukan.

**Tujuan Penelitian** : Penelitian ini bertujuan untuk mengkaji hubungan ekspresi reseptor progesteron dalam darah dengan subtype histopatologis meningioma orbitokranial jinak.

**Metode** : Penentuan subtype meningioma berdasarkan catatan hasil pemeriksaan Laboratorium Patologi Anatomi dilakukan oleh Ahli Patologi Anatomi FK UGM. Dilakukan pengambilan darah yang kemudian diserahkan kepada Bagian Patologi Anatomi FK UGM untuk dihitung tingkat ekspresi reseptor progesteron dalam darah menggunakan *Real Time Polymerase Chain Reaction* (RT-PCR) dan pewarnaan SYBR. Hasil RT-PCR dianalisis secara kuantitatif menggunakan metode penghitungan  $2^{-\Delta\Delta C_T}$  relatif terhadap ekspresi reseptor progesteron pada kontrol normal. Data dianalisis secara statistik dengan uji *Kruskall Wallis*.

**Hasil Penelitian** : Rata-rata hasil ekspresi reseptor progesteron dalam darah paling tinggi terdapat pada meningioma transisional dengan 10 sampel penelitian, diikuti meningioma meningoethelial dengan 9 sampel penelitian dan meningioma fibroblastik dengan 3 sampel penelitian. Ekspresi reseptor progesteron dalam darah dan subtype pada data penelitian tidak terdistribusi normal berdasarkan uji normalitas *Saphiro Wilk* ( $p < 0,05$ ). Hubungan antara ekspresi PR dalam darah dan subtype tidak signifikan berdasarkan uji *Kruskall Wallis* ( $p > 0,05$ ).

**Kesimpulan** : Tingkat ekspresi reseptor progesteron dalam darah tidak memiliki perbedaan yang bermakna pada berbagai subtype histopatologis meningioma orbitokranial jinak.

**Kata kunci** : meningioma, subtype, reseptor progesteron, darah, PCR.

## ABSTRACT

**Background** : Meningioma is the second highest incidence of intracranial tumors after glioma. Several epidemiological studies mention that meningioma occurs more often in post-pubertal woman. Meningioma growth is increased during pregnancy and the luteal phase, but decreased after giving birth. Based on these studies, hormonal factors are considered to have an important role in meningioma growth. High expression of progesterone receptor (PR) is found in benign meningioma (WHO grade I), but the expression of PR is inversely compared to meningioma grade. Several studies review the expression of PR in meningioma tissue using immunohistochemistry method and Polymerase Chain Reaction (PCR), but the research about the expression of PR in blood is not found yet.

**Objective** : The aim of this study is to investigate relationship between the expression of progesterone receptor and histopathologically benign meningioma subtypes.

**Methods** : Pathological anatomy laboratorium expert from Faculty of Medicine Universitas Gadjah Mada determine the subtypes of meningioma based on the findings noted at pathological anatomy laboratorium records. The collected blood sent to pathological anatomy laboratorium in Faculty of Medicine to be assessed the Progesterone Receptor Expression in blood using Real Time Polymerase Chain Reaction (RT-PCR) and SYBR staining. The results of RT-PCR were analyzed using Analysis of Relative Gene Expression Data Using Real- Time Quantitative PCR and the  $2^{-\Delta\Delta C_T}$  Method. Data were statistically analyzed by performing Kruskal Willis.

**Results** : Transitional meningioma was the highest average of the progesterone receptor expression in blood with 10 samples of study, followed by meningothelial meningioma with 9 samples of study and transitional meningioma with 3 samples of study. The expression of the progesterone receptor in blood and meningioma subtypes was not normally distributed based on the result of Shapiro Wilk normality test ( $p < 0.05$ ). The relationship between PR expression in blood and meningioma subtypes was not significant based on Kruskal Wallis test ( $p > 0.05$ ).

**Conclusion** : The expression of progesterone receptors in blood does not have a significant difference in the different histopathologic subtypes of benign orbitocranial meningioma.

**Keywords**: meningioma, subtype, progesterone receptor, blood, PCR.