



PERBEDAAN NILAI RASIO ADC PADA MENINGIOMA SELLAR DAN MAKROADENOMA HIPOFISIS

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INTISARI

Latar Belakang: Makroadenoma hipofisis dan meningioma sellar merupakan tumor jinak yang sering ditemukan di regio sellar dan parasellar. Diferensiasi dini antara kedua jenis tumor ini penting untuk menentukan rencana tindakan operatif yang tepat. Nilai Apparent Diffusion Coefficient (ADC) dari pencitraan Magnetic Resonance Imaging (MRI) diusulkan sebagai metode non-invasif untuk membantu diferensiasi ini.

Tujuan: Menilai perbedaan nilai rasio ADC antara makroadenoma hipofisis dan meningioma sellar serta menentukan nilai cut-off diagnostik rasio ADC.

Metode: Penelitian ini merupakan studi observasional analitik dengan rancangan potong lintang. Subjek penelitian adalah 24 pasien di RSUP Dr. Sardjito Yogyakarta (12 pasien meningioma dan 12 pasien makroadenoma hipofisis) yang menjalani pemeriksaan MRI kepala dengan sekuen ADC, dan telah terkonfirmasi diagnosis histopatologi. Nilai rasio ADC dihitung berdasarkan perbandingan nilai ADC tumor terhadap jaringan otak normal. Analisis dilakukan menggunakan uji Independent Samples T-Test dan kurva ROC.

Hasil: Rata-rata nilai rasio ADC pada meningioma sebesar $1,2422 \pm 0,17997$, sedangkan pada makroadenoma hipofisis sebesar $0,9963 \pm 0,23513$, dengan perbedaan yang signifikan ($p = 0,009$). Analisis ROC menunjukkan area under the curve (AUC) sebesar 0,813. Nilai cut-off rasio ADC sebesar 1.024 diperoleh, dengan sensitivitas 100% dan spesifisitas 66,7%.

Kesimpulan: Rasio ADC memiliki kemampuan diskriminatif yang sangat baik untuk membedakan meningioma sellar dan makroadenoma hipofisis. Rasio ADC dapat digunakan sebagai parameter tambahan dalam diagnosis pre-operatif tumor di regio sellar.

Kata kunci: Rasio ADC, makroadenoma hipofisis, meningioma sellar, MRI, DWI

COMPARISON OF ADC RATIO VALUES BETWEEN SELLAR MENINGIOMAS AND PITUITARY MACROADENOMAS

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ABSTRACT

Background: Pituitary macroadenoma and sellar meningioma are two common benign tumors found in the sellar and parasellar regions of the brain. Distinguishing between them early on is important, especially when planning the right surgical approach. One helpful, non-invasive method is using MRI to measure the Apparent Diffusion Coefficient (ADC), which may assist doctors in telling these tumors apart more accurately.

Objective: This study aims to compare the ADC ratio values between pituitary macroadenomas and sellar meningiomas, and to identify the best cut-off value that can help distinguish between the two.

Methods: This cross-sectional observational study involved 24 patients treated at Dr. Sardjito General Hospital in Yogyakarta—12 diagnosed with meningiomas and 12 with pituitary macroadenomas. All patients underwent brain MRI with ADC sequences, and their diagnoses were confirmed through histopathological examination. The ADC ratio was determined by comparing the ADC value of the tumor to that of normal brain tissue. The data were then analyzed using an Independent Samples T-Test and ROC curve analysis to assess diagnostic performance.

Results: The average ADC ratio was higher in meningiomas (1.2422 ± 0.17997) compared to pituitary macroadenomas (0.9963 ± 0.23513), and this difference was statistically significant ($p = 0.009$). ROC curve analysis showed a good diagnostic performance, with an area under the curve (AUC) of 0.813. The optimal cut-off value for the ADC ratio was found to be 1.024, which gave a sensitivity of 100% and a specificity of 66.7%.

Conclusion: The ADC ratio shows strong potential in helping to distinguish sellar meningiomas from pituitary macroadenomas. It can be a useful additional tool to support the preoperative diagnosis of tumors in the sellar region..

Keywords: ADC ratio, pituitary macroadenoma, sellar meningioma, MRI, DWI