

Korelasi indeks korpus kalosum terhadap volume korpus kalosum, substansi grisea kortikal, substansi grisea subkortikal, dan substansi alba serebri melalui magnetic resonance imaging volumetri otak pada penderita sklerosis multipel = Correlation of corpus callosum index with corpus callosum, cortical gray matter, subcortical gray matter, and cerebral white matter volume from magnetic resonance brain volumetry in multiple sclerosis patients

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Abstrak

Latar Belakang: Sklerosis multipel (multiple sclerosis/MS) merupakan penyakit inflamasi-demyelinasi sistem saraf pusat yang mengakibatkan atrofi struktur otak penderita. Indeks korpus kalosum (IKK) merupakan salah satu metode pengukuran morfometrik korpus kalosum yang cepat serta dengan reliabilitas interrater yang tinggi.

Tujuan: Mengetahui korelasi antara hasil pengukuran IKK dengan volume korpus kalosum, substansi grisea kortikal, substansi grisea subkortikal, dan substansi alba serebri melalui MRI volumetri otak pada penderita MS.

Metode : Hasil MRI kepala dari 30 penderita MS dilakukan pengukuran IKK. Nilai IKK kemudian dilakukan analisis korelasional dengan volume korpus kalosum, substansi grisea kortikal, substansi grisea subkortikal, dan substansi alba serebri yang diperoleh menggunakan perangkat lunak FreeSurfer©.

Hasil : Terdapat korelasi yang sangat kuat antara IKK dengan volume korpus kalosum ($R = 0,797$; $p = 0,001$) dan volume substansi alba serebri ($R = 0,813$; $p = 0,001$). IKK juga berkorelasi kuat dengan volume substansi grisea kortikal ($R = 0,642$; $p = 0,001$) dan volume substansi grisea subkortikal ($R = 0,696$; $p = 0,001$).

Kesimpulan : Metode pengukuran IKK dapat menjadi parameter morfometrik cepat dan sederhana yang menggambarkan volume korpus kalosum, substansi grisea kortikal, substansi grisea subkortikal, dan substansi alba serebri pada penderita MS.

.....Background: Multiple sclerosis (MS) is an inflammatory-demyelinating disease of the central nervous system which results in atrophy of brain structure. Corpus callosum index (CCI) is a method of morphometric measurement of the corpus callosum using midsagittal slice from MRI which does not require additional sequences with fast processing time and high interrater reliability.

Objectives : To determine the correlation between the CCI measurements with corpus callosum, cortical gray matter, subcortical gray matter, and cerebral white matter volume through brain MRI volumetry in MS patients.

Methods : CCI measurements were obtained from head MRI from 30 MS patients according to the method conceived by Figueroa et al. Correlational analysis was carried out between CCI with corpus callosum, cortical gray matter, subcortical gray matter, and cerebral white matter volume obtained using FreeSurfer©.

Results : Very strong correlation was shown between CCI and corpus callosum volume ($R = 0.797$; $p = 0.001$) and cerebral white matter volume ($R = 0.813$; $p = 0.001$). CCI also shown strong correlation with cortical gray matter volume ($R = 0.642$; $p = 0.001$) and subcortical gray matter volume ($R = 0.696$; $p =$

0.001).

Conclusion : CCI can be a fast and simple morphometric parameter that describes the corpus callosum, cortical gray matter, subcortical gray matter, and cerebral white matter volume in MS patients.