

## KORELASI DERAJAT *WHITE MATTER HYPERINTENSITY* DENGAN VOLUME HIPPOCAMPUS PADA MRI VOLUMETRIK CEREBRAL PASIEN DEMENSIA

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### INTISARI

**Tujuan :** Penelitian ini untuk mengetahui korelasi derajat *white matter hyperintensity* (WMH) dengan volume hippocampus pada MRI volumetrik cerebral pasien demensia.

**Metode :** Penelitian ini merupakan penelitian cross-sectional dengan pengambilan data secara retrospektif dari data sekunder pasien klinis demensia yang dilakukan MRI volumetrik cerebral pada Januari 2020 - Januari 2022. Pengambilan sampel secara *consecutive non-random sampling*. Subjek terpilih sesuai kriteria inklusi dan eksklusi. Dilakukan penilaian derajat *white matter hyperintensity* dan hasilnya dikorelasikan dengan volume hippocampus.

**Hasil :** Jumlah sampel 33 subjek. Sebagian besar berjenis kelamin laki-laki sebanyak 20 subjek (61%). Sebaran usia didominasi kelompok 65-70 tahun (52%). Sebagian besar subjek memiliki tekanan darah kategori hipertensi (79%) dengan IMT kategori normal (79%). Jumlah subjek terbanyak pada demensia vaskular (52%) diikuti demensia Alzheimer (24%) dan demensia *mixed type* (18%), dengan paling sedikit demensia *unspecified* (6%). Pada sebagian besar subjek memiliki derajat *white matter hyperintensity* Fazekas 1 diikuti derajat Fazekas 2 baik pada *periventricular white matter* maupun *deep white matter*.

**Kesimpulan :** Didapatkan hubungan yang bermakna secara statistik antara derajat *white matter hyperintensity* dengan volume hippocampus dengan nilai negatif pada *periventricular white matter* ( $p = 0,024$  ;  $r = -0,346$ ) dan *deep white matter* ( $p = 0,026$  ;  $r = -0,340$ ).

**Kata kunci :** demensia, Fazekas, hippocampus, *white matter hyperintensity*, volumetrik MRI

## **CORRELATION OF WHITE MATTER HYPERINTENSITY DEGREE WITH HIPPOCAMPUS VOLUME ON CEREBRAL VOLUMETRIC MRI OF DEMENTIA PATIENTS**

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### **ABSTRACT**

**Objective :** This study was to determine the correlation between the degree of *white matter hyperintensity* (WMH) and hippocampal volume in cerebral volumetric MRI of dementia patients.

**Methods:** This study is a cross-sectional study with retrospective data collection from secondary data of dementia clinical patients who underwent cerebral volumetric MRI in January 2020 - January 2022. Consecutive non- random sampling was taken . Subjects were selected according to the inclusion and exclusion criteria. The degree of white matter hyperintensity was assessed and the results were correlated with the hippocampal volume.

**Results:** The number of samples is 33 subjects. Most of them were male as many as 20 subjects (61%). The age distribution was dominated by the 65-70 year old group (52%). Most of the subjects had blood pressure in the hypertension category (79%) with normal BMI (79%). The highest number of subjects had vascular dementia (52%) followed by Alzheimer's dementia (24%) and mixed type dementia (18%), with the least amount of unspecified dementia (6%). Most of the subjects had white matter hyperintensity degree Fazekas 1 followed by degree Fazekas 2 both in the periventricular white matter and deep white matter .

**Conclusion:** There was a statistically significant relationship between the degree of white matter hyperintensity and hippocampal volume with negative values in the periventricular white matter ( $p = 0.024$  ;  $r = -0.346$ ) and deep white matter ( $p = 0.026$  ;  $r = -0.340$ ).

**Keywords:** dementia, Fazekas, hippocampus, white matter hyperintensity, volumetric MRI