

HUBUNGAN ANTARA WHITE MATTER HYPERINTENSITIES (WMH) DENGAN BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA (BPSD) PADA DEMENSIA

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ABSTRAK

Latar belakang: Peningkatan *white matter hyperintensities* (WMH) terkait dengan munculnya gejala kecemasan, perilaku motorik yang menyimpang, dan gangguan malam hari. WMH secara independen terkait dengan BPSD (*Behavioural and Psychological Symptoms of Dementia*). Biomarker WMH merupakan lesi *white matter* pada otak yang tampak hiperintens pada T2 MRI otak. Beberapa studi menyimpulkan adanya hubungan antara biomarker WMH dengan tingkat keparahan BPSD pada demensia masih kontroversi. Studi ini bertujuan untuk meneliti Hubungan antara WMH (*White Matter Hyperintensities*) dengan BPSD (*Behavioural and Psychological Symptoms of Dementia*) pada Demensia di RSUP Dr. Sardjito.

Metode: Penelitian ini menggunakan rancangan analitik observasional dengan pendekatan potong lintang untuk mengetahui hubungan *White Matter Hyperintensities* (WMH) dengan *Behavioural and Psychological Symptoms of Dementia* (BPSD) pada Demensia di RSUP Dr Sardjito. Pada Penelitian ini mengambil data rekam medis pasien klinik memori RSUP Dr Sardjito periode tahun Januari 2022 – Agustus 2024 yang dilakukan pada bulan Agustus-September 2024 (setelah *ethical approval* dikeluarkan). Variabel sosiodemografis dan klinis akan dianalisis secara deskriptif. Selanjutnya dilakukan analisis bivariat, dilanjutkan analisis multivariat, dan uji regresi.

Hasil: Sebanyak 44 pasien yang memenuhi kriteria inklusi dan eksklusi. Pada penelitian ini didapatkan prevalensi Demensia Alzheimer (AD) sebanyak 16 orang (36.36%), Demensia Vaskular (DVa) 17 orang (38.64%), dan Mixed Demensia sebanyak 11 orang (25.00%). Lokasi WMH pada MRI kepala didominasi area gabungan periventrikuler dengan *deep white matter*, diikuti oleh area *deep white matter*, dan area periventrikuler. Hasil uji bivariat menunjukkan bahwa adanya hubungan positif WMH dan BPSD. Analisis multivariat pada penelitian ini memenuhi uji asumsi. Uji regresi menunjukkan setiap peningkatan satu derajat WMH, skor NPI akan naik 2,521 poin.

Kesimpulan: Hasil penelitian ini menunjukkan adanya hubungan positif antara *White Matter Hyperintensities* dan *Behavioral Psychological Symptoms of Dementia* pada pasien Demensia.

Kata kunci: *White Matter Hyperintensities*, *Behavioral Psychological Symptoms of Dementia*, MRI, Demensia

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ASSOCIATION BETWEEN WHITE MATTER HYPERINTENSITIES (WMH) AND BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA (BPSD) IN DEMENTIA

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ABSTRACT

Objective: Increased white matter hyperintensities (WMH) have been associated with the emergence of anxiety symptoms, abnormal motor behaviors, and nighttime disturbances. WMH is independently associated with BPSD (Behavioural and Psychological Symptoms of Dementia). WMH biomarkers are white matter lesions in the brain that appear hyperintense on T2-weighted brain MRI. Several studies have examined the relationship between WMH biomarkers and the severity of BPSD in dementia, but the findings remain controversial. This study aims to investigate the association between WMH (White Matter Hyperintensities) and BPSD (Behavioural and Psychological Symptoms of Dementia) in Dementia at Dr. Sardjito General Hospital.

Methods: This study applied an observational analytical design with a cross-sectional approach to determine the relationship between White Matter Hyperintensities (WMH) and Behavioral and Psychological Symptoms of Dementia (BPSD) in Dementia at Dr. Sardjito General Hospital. Medical record data from memory clinic patients at Dr. Sardjito General Hospital from January 2022 to August 2024 were collected in August–September 2024 (after ethical approval was obtained). Sociodemographic and clinical variables were analyzed descriptively. Bivariate analysis was performed, followed by multivariate analysis, and regression tests..

Results: A total of 44 patients met the inclusion and exclusion criteria. In this study, the prevalence of Alzheimer's Dementia (AD) was 16 patients (36.36%), Vascular Dementia (VaD) 17 patients (38.64%), and Mixed Dementia 11 patients (25.00%). The distribution of WMH on brain MRI was predominantly in the combined periventricular with deep white matter regions, followed by deep white matter and periventricular areas. Bivariate analysis revealed a positive association between WMH and BPSD. The multivariate analysis in this study met the assumption test. Regression analysis demonstrated that for every one-degree increase in WMH, the NPI score would increase by 2.521 points.

Conclusions: The results of this study indicate a positive association between White Matter Hyperintensities and Behavioral Psychological Symptoms of Dementia in Dementia patients.

Keywords: White Matter Hyperintensities, Behavioral Psychological Symptoms of Dementia, MRI, Demensia

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