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Relationship Between Psychopathology and Regional Cerebral Blood Flow Detected by Tc-99m HMPAO SPECT in Patients with Predominantly Positive or Negative Schizophrenic Symptoms

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Abstract: We investigated whether rCBF values obtained with the SPECT technique are different in schizophrenics with predominantly positive or negative symptoms and assessed the biological underpinnings of psychotic phenomena, which has been done repeatedly in the past, with somewhat varied results. Twenty-nine schizophrenic patients were examined to investigate the relationship between regional cerebral blood flow (rCBF) and psychopathology according to SANS, SAPS and BPRS scores. Using the Tc-99m HMPAO SPECT method at rest, rCBF was assessed in 15 patients with predominantly positive (group I) and 14 with predominantly negative (group II) symptoms. Ten age-matched normal healthy volunteers comprised the control group. We found that the rCBF of group II was prominently decreased in the temporal region compared to that of group I. Basal ganglia rCBF demonstrated a hyperperfusion pattern in medicated vs non-medicated patients ($p < 0.05$). Negative symptom scores showed a positive correlation, particularly with left parietal blood flows, and a negative correlation with temporal region blood flows; positive symptom scores showed correlations positively with temporal region blood flow and negatively with left parieto-temporal blood flows. It is suggested that positive/negative symptoms might reflect a dysfunction of fronto-parieto-temporal heteromodal association cortices.

Key Words: schizophrenia, negative/positive symptoms, SPECT.

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