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BILATERAL HYPERMETABOLISM IN POSTERIOR CINGULUM AND PRECUNEUS IN SUBSTANCE-INDUCED PSYCHOSIS VERSUS SCHIZOPHRENIA

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BACKGROUND-AIM

Several studies have highlighted the connection between cannabis abuse and schizophrenia. Relatively little has been written about the differences between schizophrenia with co-occurrent cannabis abuse and substance-induced psychotic disorder (SIPD). The study aims to investigate the psychopathological and neurometabolic features of these clinical entities.

METHODS

We enrolled 16 patients (male, M = 13, female, F = 3), including 11 schizophrenic patients and 5 substance-induced psychotic disorder (SIPD) patients. The schizophrenic patients were further divided into those who were taking cannabis during the weeks before the psychiatric admission (SCH + CA) and those who were not (SCZ – CA)

Cerebral FDG-PET scans were obtained with a Biograph Truepoint 64 PET/CT scanner.

Two different and complementary image analyses were performed: a voxel-based whole brain analysis using SPM8 and the Scenium software (Siemens Molecular Imaging Ltd.).

RESULTS

The one-way ANOVA of SPM analysis of FDG-PET images revealed a significant difference among the three groups in the posterior cingulum and precuneus bilaterally. The post hoc two-sample t test showed that only the SIPD versus SCZ – CA and the SIPD versus SCZ + CA contrast showed a cluster of 450 voxels of increased glucose metabolism in the posterior cingulum (Brodmann area 31) and precuneus (Brodmann area 7). No significant differences were found between the two schizophrenic samples (SCZ + CA vs. SCZ – CA).

The statistical analysis of the Scenium software showed an area of increased glucose metabolism in the cingulated cortex and precuneus in SIPD patients compared to the reference image provided by the software itself.

CONCLUSION

This study suggest that substance abuse may cause increased brain metabolism in patients with induced psychosis but not in those with schizophrenia. These differences in brain metabolism were found in the posterior cingulum and precuneus, which are two core regions of the default mode network in humans.