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TO EVALUATE THE ROLE OF FDG PET CT SCAN TO DIFFERENTIATE SCHIZOPHRENIA AND BIPOLAR AFFECTIVE DISORDER A COMPARATIVE STUDY FROM A TERTIARY CARE CENTRE

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ABSTRACT

Introduction: Schizophrenia and Bipolar Affective Disorder (BPAD) often share overlapping symptoms, complicating early diagnosis. Functional neuroimaging, such as 18F-fluorodeoxyglucose PET-CT (FDG PET-CT), may help identify disorder-specific metabolic patterns. This study evaluated its utility in differentiating schizophrenia from BPAD.

Aims and Objectives: To compare cerebral glucose metabolism patterns on FDG PET-CT among patients with schizophrenia, BPAD, and healthy controls, and evaluate its role as an adjunct diagnostic tool.

Materials and Methods: In a one-year cross-sectional study at a tertiary care hospital in Kolkata, 72 patients with schizophrenia or BPAD were assessed. Sociodemographic data (age, sex, marital status, residence) were collected. FDG PET-CT analyzed metabolism in the prefrontal cortex, posterior frontal lobes, medial and lateral temporal lobes, basal ganglia, cerebellum, and other regions.

Results: Age ($p = 0.0231$) and marital status ($p = 0.0196$) differed significantly; sex ($p = 0.4652$), residence ($p = 0.6429$), mean age (33.28 ± 7.41 vs. 29.5 ± 9.58; $p = 0.0655$), and symptom scores (6.81 ± 3.76 vs. 6.83 ± 5.66; $p = 0.9805$) did not. FDG PET-CT showed predominantly normal metabolism. Mild hypometabolism occurred in the prefrontal cortex (30.6% left, 27.8–30.6% right; $p = 0.5195$–0.6468) and medial temporal lobes (47.2–55.6%; $p = 0.5493$–0.6844). Parietal, cingulate, occipital, cerebellum, and basal ganglia regions showed no significant differences ($p = 0.1837$–0.7358).

Conclusion: FDG PET-CT reveals subtle metabolic patterns that may aid in differentiating schizophrenia from BPAD. Although not diagnostic alone, it can serve as an adjunct to clinical assessment, improving accuracy in ambiguous cases.

Keywords: *Schizophrenia, Bipolar Affective Disorder, FDG PET-CT, Brain Metabolism, Neuroimaging.*

INTRODUCTION

Schizophrenia and Bipolar Affective Disorder (BPAD) are two of the most prevalent and debilitating psychiatric disorders worldwide, contributing significantly to disability, healthcare utilization, and socioeconomic burden [1]. Both conditions frequently present with overlapping symptoms—such as mood disturbances, psychosis, and cognitive dysfunction—which often complicates early diagnosis, particularly in resource-limited settings [2]. Misdiagnosis between schizophrenia and BPAD can lead to inappropriate treatment strategies, delayed initiation of effective therapy,

and poorer long-term outcomes [3]. Therefore, identifying reliable biomarkers to improve diagnostic accuracy remains a critical focus within psychiatric research.

Over the past decade, advances in neuroimaging have provided valuable insights into the pathophysiological underpinnings of major psychiatric illnesses. Among these, 18F-fluorodeoxyglucose positron emission tomography–computed tomography (FDG PET-CT) has emerged as a promising modality for assessing cerebral glucose metabolism, a surrogate marker for neuronal activity [4]. FDG PET-CT can detect functional abnormalities even in the absence of structural changes, thus offering potential utility in differentiating between psychiatric disorders with similar clinical presentations [5].

Several studies have reported characteristic metabolic patterns in schizophrenia, typically demonstrating hypometabolism in the prefrontal cortex, anterior cingulate cortex, and temporal lobes, regions associated with executive function, emotional regulation, and perceptual abnormalities [6]. Conversely, BPAD exhibits more variable metabolic changes depending on mood state. Manic episodes often show hypermetabolism in limbic and subcortical regions, whereas depressive phases may be associated with hypometabolism in prefrontal and parietal areas [7]. Despite this knowledge, most existing literature is derived from Western populations, and substantial heterogeneity persists regarding regional metabolic variations.

Data from India remain limited, particularly concerning direct comparisons of metabolic profiles in schizophrenia and BPAD using FDG PET-CT [8]. Furthermore, the clinical applicability of PET-CT findings in routine psychiatric practice has not been well established in low- and middle-income countries, where diagnostic challenges are compounded by symptom overlap, delayed healthcare seeking, and limited availability of specialized mental health services [9]. There is a growing need for region-specific research to evaluate the utility of FDG PET-CT as an adjunct diagnostic tool in the differential diagnosis of major psychiatric disorders.

In the context of a tertiary care setting—where patients often present with diagnostic complexity, refractory symptoms, or atypical clinical profiles—functional neuroimaging may add considerable value to clinical evaluation. Establishing consistent metabolic patterns in schizophrenia and BPAD could improve diagnostic accuracy, guide individualized treatment strategies, and potentially enhance long-term outcomes [10]. To compare cerebral glucose metabolism patterns on FDG PET-CT among patients with schizophrenia, patients with bipolar affective disorder, and healthy controls, and to assess its utility as an adjunct diagnostic tool.

MATERIALS AND METHODS

Study design: It was a comparative cross-sectional observational study.

Place of study: Psychiatry OPD in a tertiary care general hospital (NRS medical college & hospital, Kolkata, West Bengal)

Period of study: 1 Year.

Study population: Patients attending Psychiatry OPD in a tertiary care general hospital (NRS medical college & hospital, Kolkata, West Bengal)

Study Variables: Age, Sex, Marital Status, Residence Type, Bipolar, Schizophrenia, Prefrontal Cortex Left, Prefrontal Cortex Right, Posterior Frontal Lobe Left, Posterior Frontal Lobe Right, Medial Temporal Lobe Left, Medial Temporal Lobe Right, Lateral Temporal Lobe Left, Lateral Temporal Lobe Right, Basal Ganglia Right, Basal Ganglia Left.

Sample size: 72 Patients diagnosed with schizophrenia and bipolar affective disorder were included in the study.

Inclusion Criteria:
- Patients aged 18-60 years diagnosed with schizophrenia or bipolar affective disorder according to DSM-5 criteria.
- Patients willing to undergo FDG PET-CT scanning.
- Patients providing informed consent.

Exclusion Criteria:
- Patients with major neurological disorders (e.g., stroke, epilepsy, brain tumors).
- Patients with severe medical comorbidities affecting brain metabolism (e.g., uncontrolled diabetes, thyroid disorders).
- Pregnant or lactating women.

- Patients on medications that significantly alter cerebral glucose metabolism (e.g., high-dose corticosteroids).
- Patients with claustrophobia or contraindications to PET-CT scanning.

Statistical Analysis: Data were analyzed using SPSS version 25.0. Continuous variables were expressed as mean ± standard deviation and compared using Student's t-test or ANOVA, as appropriate. Categorical variables were presented as frequencies and percentages and analyzed using the chi-square test or Fisher's exact test. Correlations between clinical parameters and regional cerebral glucose metabolism were assessed using Pearson or Spearman correlation coefficients. A p-value <0.05 was considered statistically significant.

RESULT

Table 1: Socio-demographic Characteristics of Patients with Bipolar Disorder and Schizophrenia

		Bipolar	Schizophrenia	Total	p-value
Age Group	**≤20**	1 (2.8%)	5 (13.9%)	6 (8.3%)	0.0231
	21–30	13 (36.1%)	18 (50.0%)	31 (43.1%)	
	31–40	16 (44.4%)	5 (13.9%)	21 (29.2%)	
	>40	6 (16.7%)	8 (22.2%)	14 (19.4%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Sex	**Male**	21 (58.3%)	24 (66.7%)	45 (62.5%)	0.4652
	Female	15 (41.7%)	12 (33.3%)	27 (37.5%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Marital Status	**Unmarried**	21 (58.3%)	30 (83.3%)	51 (70.8%)	0.0196
	Married	15 (41.7%)	6 (16.7%)	21 (29.2%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Residence Type	**Urban**	34 (94.4%)	33 (91.7%)	67 (93.1%)	0.6429
	Rural	2 (5.6%)	3 (8.3%)	5 (6.9%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	

Table 2: Distribution of Mean Duration of Illness by Diagnosis

Diagnosis	Number	Mean	SD	Minimum	Maximum	Median	p-value
Bipolar	36	6.8056	3.7631	2	21	7	0.9805
Schizophrenia	36	6.8333	5.6594	1	25	5	

Table 3: PET Scan Findings of Prefrontal and Temporal Lobes in Patients with Bipolar Disorder and Schizophrenia

		Bipolar	Schizophrenia	Total	p-value
Prefrontal Cortex Left	**Diffuse hypermetabolism**	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.5195
	Diffuse hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild hypermetabolism	3 (8.3%)	1 (2.8%)	4 (5.6%)	
	Mild hypometabolism	11 (30.6%)	11 (30.6%)	22 (30.6%)	
	Mild to moderate hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild to moderate hypometabolism	12 (33.3%)	8 (22.2%)	20 (27.8%)	
	Normal	10 (27.8%)	13 (36.1%)	23 (31.9%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Prefrontal Cortex Right	**Diffuse hypermetabolism**	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.6468
	Diffuse hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild hypermetabolism	2 (5.6%)	1 (2.8%)	3 (4.2%)	
	Mild hypometabolism	10 (27.8%)	11 (30.6%)	21 (29.2%)	
	Mild to moderate hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild to moderate hypometabolism	12 (33.3%)	8 (22.2%)	20 (27.8%)	
	Normal	12 (33.3%)	13 (36.1%)	25 (34.7%)	

	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Posterior Frontal Lobe Left	**Mild hypometabolism**	1 (2.8%)	0 (0.0%)	1 (1.4%)	0.3139
	Normal	35 (97.2%)	36 (100.0%)	71 (98.6%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Posterior Frontal Lobe Right	**Mild hypometabolism**	1 (2.8%)	0 (0.0%)	1 (1.4%)	0.3139
	Normal	35 (97.2%)	36 (100.0%)	71 (98.6%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Medial Temporal Lobe Left	**Diffuse hypometabolism**	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.5493
	Mild hypermetabolism	1 (2.8%)	1 (2.8%)	2 (2.8%)	
	Mild hypometabolism	20 (55.6%)	17 (47.2%)	37 (51.4%)	
	Mild to moderate hypometabolism	12 (33.3%)	9 (25.0%)	21 (29.2%)	
	Moderate hypometabolism	0 (0.0%)	2 (5.6%)	2 (2.8%)	
	Moderate to severe hypometabolism	1 (2.8%)	1 (2.8%)	2 (2.8%)	
	Normal	2 (5.6%)	5 (13.9%)	7 (9.7%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Medial Temporal Lobe Right	**Diffuse hypometabolism**	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.6844
	Mild hypermetabolism	1 (2.8%)	1 (2.8%)	2 (2.8%)	
	Mild hypometabolism	20 (55.6%)	17 (47.2%)	37 (51.4%)	
	Mild to moderate hypometabolism	11 (30.6%)	9 (25.0%)	20 (27.8%)	
	Moderate hypometabolism	0 (0.0%)	2 (5.6%)	2 (2.8%)	
	Moderate to severe hypometabolism	1 (2.8%)	1 (2.8%)	2 (2.8%)	
	Normal	3 (8.3%)	5 (13.9%)	8 (11.1%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Lateral Temporal Lobe Left	**Mild to moderate hypermetabolism**	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.3139
	Normal	36 (100.0%)	35 (97.2%)	71 (98.6%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Lateral Temporal Lobe Right	**Mild to moderate hypermetabolism**	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.3139
	Normal	36 (100.0%)	35 (97.2%)	71 (98.6%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	

Table 4: PET Scan Findings of Parietal, Cingulate, and Occipital Lobes in Patients with Bipolar Disorder and Schizophrenia

		Bipolar	**Schizophrenia**	**Total**	**p-value**
Parietal Lobe Left	Diffuse hypermetabolism	1 (2.8%)	0 (0.0%)	1 (1.4%)	0.7063
	Diffuse hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild hypometabolism	3 (8.3%)	3 (8.3%)	6 (8.3%)	
	Mild to moderate hypometabolism	3 (8.3%)	4 (11.1%)	7 (9.7%)	
	Normal	29 (80.6%)	28 (77.8%)	57 (79.2%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Parietal Lobe Right	Diffuse hypermetabolism	1 (2.8%)	0 (0.0%)	1 (1.4%)	0.603
	Diffuse hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild hypometabolism	3 (8.3%)	3 (8.3%)	6 (8.3%)	
	Mild to moderate hypometabolism	2 (5.6%)	4 (11.1%)	6 (8.3%)	
	Normal	30 (83.3%)	28 (77.8%)	58 (80.6%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Cingulate Cortex Left	Diffuse hypermetabolism	2 (5.6%)	1 (2.8%)	3 (4.2%)	0.7212
	Mild hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	

	Mild to moderate hypometabolism	2 (5.6%)	2 (5.6%)	4 (5.6%)	
	Normal	32 (88.9%)	32 (88.9%)	64 (88.9%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Cingulate Cortex Right	Diffuse hypermetabolism	1 (2.8%)	1 (2.8%)	2 (2.8%)	0.7358
	Mild hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild hypometabolism	1 (2.8%)	0 (0.0%)	1 (1.4%)	
	Mild to moderate hypometabolism	2 (5.6%)	2 (5.6%)	4 (5.6%)	
	Normal	32 (88.9%)	32 (88.9%)	64 (88.9%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Occipital Lobe Left	Diffuse hypermetabolism	1 (2.8%)	0 (0.0%)	1 (1.4%)	0.5553
	Mild hypermetabolism	1 (2.8%)	1 (2.8%)	2 (2.8%)	
	Mild hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild to moderate hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Normal	34 (94.4%)	33 (91.7%)	67 (93.1%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Occipital Lobe Right	Diffuse hypermetabolism	1 (2.8%)	0 (0.0%)	1 (1.4%)	0.5553
	Mild hypermetabolism	1 (2.8%)	1 (2.8%)	2 (2.8%)	
	Mild hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild to moderate hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Normal	34(94.4%)	33 (91.7%)	67 (93.1%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	

Table 5: PET Scan Findings of Cerebellum and Basal Ganglia in Patients with Bipolar Disorder and Schizophrenia

		Bipolar	**Schizophrenia**	**Total**	**p-value**
Cerebellum Left	Diffuse hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.4548
	Hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild hypermetabolism	2 (5.6%)	2 (5.6%)	4 (5.6%)	
	Mild hypometabolism	2 (5.6%)	5 (13.9%)	7 (9.7%)	
	Mild to moderate hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Moderate to severe hypometabolism	1 (2.8%)	0 (0.0%)	1 (1.4%)	
	Normal	31 (86.1%)	26 (72.2%)	57 (79.2%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Cerebellum Right	Diffuse hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	0.1837
	Hypermetabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Mild hypermetabolism	2 (5.6%)	1 (2.8%)	3 (4.2%)	
	Mild hypometabolism	2 (5.6%)	8 (22.2%)	10 (13.9%)	
	Mild to moderate hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Moderate to severe hypometabolism	1 (2.8%)	0 (0.0%)	1 (1.4%)	
	Normal	31 (86.1%)	24 (66.7%)	55 (76.4%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Basal Ganglia Left	Diffuse hypermetabolism	1 (2.8%)	4 (11.1%)	5 (6.9%)	0.235
	Mild hypermetabolism	1 (2.8%)	4 (11.1%)	5 (6.9%)	
	Mild hypometabolism	2 (5.6%)	1 (2.8%)	3 (4.2%)	
	Mild to moderate hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Normal	32 (88.9%)	26 (72.2%)	58 (80.6%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	
Basal Ganglia Right	Diffuse hypermetabolism	1 (2.8%)	4 (11.1%)	5 (6.9%)	0.235
	Mild hypermetabolism	1 (2.8%)	4 (11.1%)	5 (6.9%)	
	Mild hypometabolism	2 (5.6%)	1 (2.8%)	3 (4.2%)	

	Mild to moderate hypometabolism	0 (0.0%)	1 (2.8%)	1 (1.4%)	
	Normal	32 (88.9%)	26 (72.2%)	58 (80.6%)	
	Total	36 (100.0%)	36 (100.0%)	72 (100.0%)	

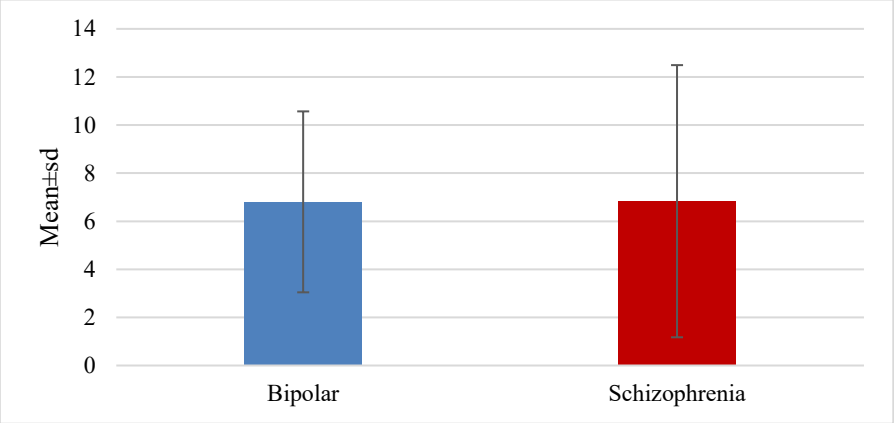

Figure 1: Distribution of Mean Duration of Illness by Diagnosis

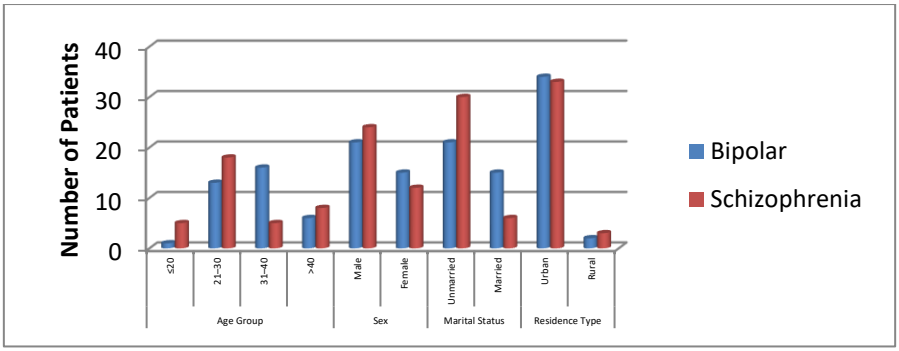

Figure 2: Socio-demographic Characteristics of Patients with Bipolar Disorder and Schizophrenia

Among the 72 patients, the age distribution differed significantly between bipolar and schizophrenia groups ($p = 0.0231$), with most bipolar patients aged 31–40 (44.4%) and most schizophrenia patients aged 21–30 (50.0%). There was no significant sex difference ($p = 0.4652$). Marital status showed a significant difference ($p = 0.0196$), with more schizophrenia patients being unmarried (83.3%) compared to bipolar patients (58.3%). Most participants resided in urban areas, with no significant difference between groups ($p = 0.6429$).

The mean age of bipolar patients was 33.28 ± 7.41 years (range 17–45, median 34.5) compared to 29.5 ± 9.58 years (range 16–45, median 27) in schizophrenia patients, with no statistically significant difference ($p = 0.0655$). Symptom scores were similar between groups, with bipolar patients having a mean score of 6.81 ± 3.76 (range 2–21, median 7) and schizophrenia patients 6.83 ± 5.66 (range 1–25, median 5; $p = 0.9805$).

PET scan findings showed no statistically significant differences between bipolar and schizophrenia patients in any brain region examined. In the prefrontal cortex, mild hypometabolism was observed in 30.6% of patients in both groups on the left side and in 27.8–30.6% on the right, while most remaining scans were normal ($p = 0.5195$ for left, 0.6468 for right). Posterior frontal lobes were largely normal in both groups (97.2–100%, $p = 0.3139$). In the medial temporal lobes, mild hypometabolism predominated (47.2–55.6%), with a few cases showing moderate or moderate-to-severe hypometabolism; differences were not significant ($p = 0.5493$ left, 0.6844 right). Lateral temporal lobes were almost entirely normal, with only one case of mild-to-moderate hypermetabolism in schizophrenia on each side ($p = 0.3139$).
PET scan analysis of the parietal, cingulate, and occipital lobes revealed predominantly normal findings in both bipolar and schizophrenia patients, with no statistically significant differences observed. In the parietal lobes, 77.8–83.3% of scans were normal, with mild to moderate hypometabolism seen in a minority of patients ($p = 0.603$–0.7063). The cingulate cortex showed mostly normal metabolism (88.9%), with occasional diffuse hypermetabolism or mild-to-moderate hypometabolism in a few cases ($p = 0.7212$–0.7358). Occipital lobes were also largely normal (91.7–94.4%), with rare instances of hyper- or hypometabolism ($p = 0.5553$).

PET scan analysis of the cerebellum and basal ganglia showed mostly normal findings in both groups, with no statistically significant differences. In the cerebellum, 72.2–86.1% of scans were normal, with mild hypometabolism

observed more frequently in schizophrenia patients (13.9–22.2%) than in bipolar patients (5.6%; p = 0.1837–0.4548). The basal ganglia were largely normal (72.2–88.9%), with a few cases of diffuse or mild hypermetabolism more common in schizophrenia (11.1%) compared to bipolar patients (2.8%; p = 0.235). Overall, metabolic abnormalities were infrequent and mild across these regions.

DISCUSSION

In this study of 72 patients with bipolar disorder and schizophrenia, we observed largely preserved cortical glucose metabolism, with only mild and infrequent regional abnormalities. Mild hypometabolism in the prefrontal cortex was seen in 28–31% of patients, while most scans were normal. Posterior frontal lobes were predominantly normal (97–100%), and mild hypometabolism was most common in the medial temporal lobes (47–56%), with occasional moderate or moderate-to-severe hypometabolism. Lateral temporal lobes were largely normal, with only isolated cases of mild-to-moderate hypermetabolism in schizophrenia [11,12]. Analysis of parietal, cingulate, and occipital lobes revealed mostly normal metabolism, with mild-to-moderate hypometabolism observed in a minority of patients. Cerebellar and basal ganglia scans were also predominantly normal, although mild hypometabolism occurred more frequently in schizophrenia, and rare diffuse or mild hypermetabolism was noted. Overall, metabolic abnormalities were mild and infrequent across all regions [13,14]. These findings are consistent with prior studies reporting subtle cortical metabolic changes in schizophrenia and bipolar disorder, often limited to the prefrontal or temporal regions, while the majority of scans remain normal [15,16]. Although classical reviews suggest frontal hypometabolism is more prominent in schizophrenia and temporal-cerebellar changes in bipolar disorder, our cohort exhibited largely overlapping profiles, suggesting that cortical metabolism differences may be less pronounced in carefully managed or early-phase illness [17]. Differences reported in previous studies may reflect chronicity, medication exposure, or sample heterogeneity, highlighting the need for careful cohort characterization [18]. Subcortical and cerebellar metabolism showed trends consistent with prior observations: schizophrenia patients more frequently exhibited mild basal ganglia and cerebellar hypometabolism, whereas bipolar patients largely had normal findings [19]. This supports the concept that subcortical dysfunction may differentiate the two disorders more than cortical metabolism at rest. Furthermore, structural neuroimaging has demonstrated overlapping grey matter volume reductions in prefrontal and temporal cortices in both disorders, with more pronounced subcortical and cerebellar changes in schizophrenia [20].

CONCLUSION

In conclusion, this study demonstrates that while schizophrenia and bipolar affective disorder exhibit some overlapping clinical features, their cerebral glucose metabolism patterns on FDG PET-CT are largely similar, with mild regional metabolic abnormalities observed in both groups. Age and marital status differed between the groups, but sex and residence showed no significant variation. Overall, metabolic changes were infrequent and predominantly mild, suggesting that FDG PET-CT may have limited standalone diagnostic utility; however, it can serve as a supportive adjunct to clinical evaluation, particularly in complex or ambiguous cases. These findings underscore the need for further larger-scale, multicentric studies to validate region-specific metabolic biomarkers and refine their role in differential diagnosis.

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