

ORIGINAL ARTICLE

UTILITY OF CT SCAN IN DIAGNOSIS OF PSYCHIATRIC DISORDERS: A CLINICAL STUDY

Ashok Kumar Jain¹, Shishir Gupta²

¹Assistant Professor, ²Associate Professor, Department of Radiodiagnosis, TSM Medical College, Lucknow, Uttar Pradesh, India


ABSTRACT:

Background: Brain disorders may present initially or solely with psychiatric signs and symptoms. CT may be used to detect incidental findings. The present study was conducted to determine utility of CT scan in different brain abnormalities in psychic patients. **Materials & Methods:** This study was conducted in the department of Radio-diagnosis in year 2014. It included 95 psychic patients who visited for brain CT scan. Patient information such as name, age, gender etc was recorded. A detailed case history, symptoms, significant past medical history, presence or absence of confusion, abnormal neurological signs and previous history of head injury or seizure were also recorded. All cognitive and neurological examinations were performed as part of the routine clinical evaluation by the treating psychiatrist. All CT images were read by trained radiologist for the presence, absence of brain abnormalities. **Results:** Out of 95 patients, males were 64 and females were 31. The difference was significant (P - 0.05). Among various psychic disorders with abnormal scans were dementia (15), mood disorders (17), schizophrenia (4), personality disorder (7), behavior disorder (10) and anxiety disorder (2). Mood disorder showed maximum number of abnormal scan among all disorders. The most common abnormal scan in psychiatric disorder patients was generalized brain atrophy (GBA) (24) followed by brain ischemia (11), generalized brain atrophy and ischemia etc. In dementia patients, 12 patients showed neurodeficit, 13 showed seizures and 15 had head injury. In mood disorder patients, 13 had neurodeficit, 11 had seizures and 8 had head injury, Schizophrenia patients had neurodeficit (3), seizures (7), head injury (9), personality disorder patients had neurodeficit (8), seizures (12) and head injury (14). **Conclusion:** CT scan is useful diagnostic modality in psychiatric patients. It helped in diagnosing as well as provides additional favorable signs which could be beneficial for the patients.

Key words: CT scan, psychiatric, seizures

Corresponding Author: Dr. Ashok Kumar Jain, Assistant Professor, TSM Medical College, Lucknow, Uttar Pradesh, India

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INTRODUCTION

Brain is the organ of body which controls all other organs. Brain disorders may present initially or solely with psychiatric signs and symptoms. The possibility of reversible nature of few brain disorders have led to the use of brain imaging in psychiatric patients.¹

There is dual opinion in utilizing CT scan in psychic patients. Few say that it should be used as a screening procedure for all patients and some say that this should be used in only those patients who present with clear focal neurological abnormalities on examination.²

This imaging modality is a cheap, quick, sensitive imaging technique for the majority of brain lesions. CT may be used to detect incidental findings. Other new more sensitive brain imaging techniques such as magnetic resonance

imaging (MRI), positron emission tomography (PET) and single photon emission computed tomography (SPECT) are available. But these techniques are relatively costly, less easy to perform and are not easily available.³

The present study was conducted to determine utility of CT scan in different brain abnormalities in psychic patients.

MATERIALS & METHODS

This study was conducted in the department of Radiodiagnosis in year 2014. It included 95 psychic patients who visited for brain CT scan. Patient information such as name, age, gender etc was recorded. A detailed case history, symptoms, significant past medical history, presence or absence of confusion, abnormal neurological signs and previous history of head injury or seizure were also recorded. All cognitive and neurological examinations

were performed as part of the routine clinical evaluation by the treating psychiatrist. All CT images were read by trained radiologist for the presence, absence of brain abnormalities. The results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that out of 95 patients, males were 64 and females were 31. The difference was significant (P - 0.05). Table II shows that among various psychic disorders with abnormal scans were dementia (15), mood disorders (17), schrizophrenia (4), personality disorder (7), behavior

disorder (10) and anxiety disorder (2). Mood disorder showed maximum number of abnormal scan among all disorders. Graph I shows that the most common abnormal scan in psychiatric disorder patients was generalized brain atrophy (GBA) (24) followed by brain ischemia (11), generalized brain atrophy and ischemia etc. Graph II shows that in dementia patients, 12 patients showed neurodeficit, 13 showed seizures and 15 had head injury. In mood disorder patients, 13 had neurodeficit, 11 had seizures and 8 had head injury, Schrizophrenia patients had neurodeficit (3), seizures (7), head injury (9), personality disorder patients had neurodeficit (8), seizures (12) and head injury (14).

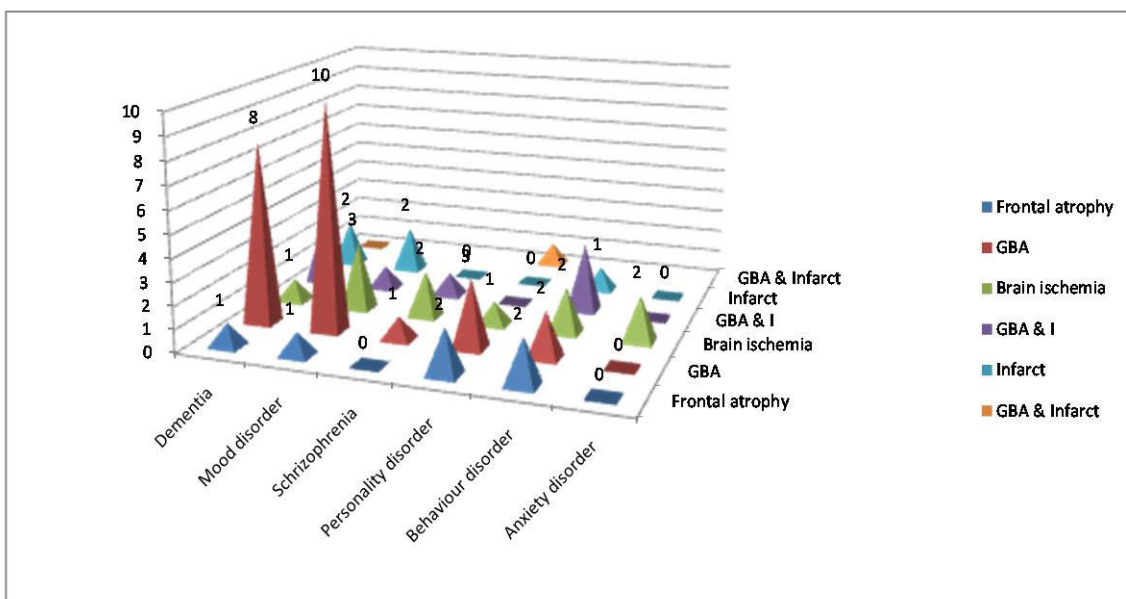
Table I Distribution of patients

Total - 95		
Male	Female	P value
64	31	0.05

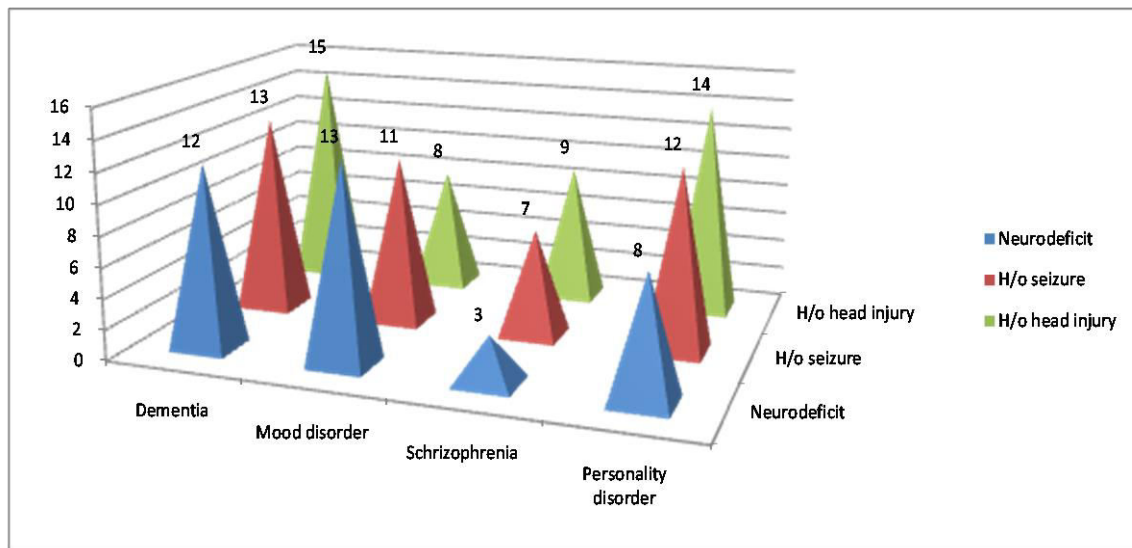
Table II Number of normal and abnormal scan

Psychiatrist diagnosis	Total	Normal Scan	Abnormal scan
Dementia	24	9	15
Mood disorder	21	4	17
Schrizophrenia	12	8	4
Personality disorder	16	9	7
Behavior disorder	12	2	10
Anxiety disorder	10	8	2
Total	95	40	45

Graph I Frequency of abnormal brain scan results for different psychiatric diagnostic categories



Graph II Association between neurodeficit, history of (H/o) seizure and head injury for different psychiatric conditions



DISCUSSION

Different imaging modalities have been established such as MRI, ultrasound, CT scan, PET scan, SPECT scan etc. CT scan has additional advantage that it is quite common, easily available and cheap as compare to other expensive modalities.⁴ The present study was conducted to determine utility of CT scan in different brain abnormalities in psychic patients. Out of 95 patients, males were 64 and females were 31. Out of 95 patients, 45 (47.3%) patients showed abnormal scans. Different authors have reported different range from 6.8 to 53%. Our results are in agreement to others.^{5,6} Mood disorder showed maximum number of abnormal scan among all disorders. Similarly, Holister⁷ in his study reported that mood disorder had maximum abnormal studies.

We found that common symptoms in all patients were neurodeficit, seizures and head injury. Our results are in agreement with the results of Roberts et al.⁸ A study conducted by Baresford et al⁹ found that history of head injury is the most commonly occurring symptom.

Although CT scan to be the imaging modality of choice in psychiatric patients, it has few limitations also such as exposure to radiation, lower soft-tissue contrast, the risk of anaphylaxis from iodinated contrast agents and renal failure.¹⁰ Various indications justifying CT brain scans in psychiatric patients have been proposed. One study suggested the following as definite indications for CT brain scanning in psychiatric patients. Positive history of previous head injury, stroke or other neurological disease, abnormal neurological sign or organic mental sign such as confusion or cognitive decline and first psychotic break or personality change after age 50 years.¹¹

CONCLUSION

CT scan is useful diagnostic modality in psychiatric patients. It helped in diagnosing as well as provide additional favorable signs which could be beneficial for the patients.

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