

PSYCHIATRIC DISORDERS IN BONE MARROW TRANSPLANT PATIENTS

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ABSTRACT

Objective: To identify the psychiatric illnesses in patients with hematological/oncological disorders encountered during blood and bone marrow transplantation.

Design: Cross-sectional study.

Place and Duration of Study: Bismillah Taquee Institute of Health Sciences and Blood Diseases Centre, Karachi from December 2002 to December 2005.

Patients and Methods: All consecutive patients, aged 15 years and above, who fulfilled inclusion and exclusion criteria and underwent blood and bone marrow transplantation, were enrolled in this study. Psychiatric assessment comprised of a semi-structured interview based on Present Status Examination (PSE). The psychiatric diagnosis was made on the basis of International Classification of Diseases (ICD-10) system of classification devised by W.H.O.

Results: Eighty patients, who fulfilled the inclusion criteria, were inducted in this study. Thirty (37.5%) cases were found to have psychiatric disorders. Out of the total, 60 (75%) were males and 20 (25%) females.

Adjustment disorder was the most frequent diagnosis (n=12), followed by major depression (n=7). Rest of the diagnoses made were generalized anxiety disorder, acute psychotic disorder, delirium and depressive psychosis.

Conclusion: High psychiatric morbidity associated with blood and bone marrow transplantation was observed. It indicates the importance of psychiatric intervention during the isolation period of BMT as well as pre-transplant psychiatric assessment and counseling regarding procedure.

KEY WORDS: *Psychiatric disorder. Adjustment disorder. Blood and bone marrow transplantation.*

INTRODUCTION

Blood and Bone Marrow Transplantation (BMT) is a complex medical procedure used in the treatment of a variety of haematological disorders and other malignant diseases.¹ Infection, Graft versus Host Diseases (GvHD), and multi-organ failure are major causes of morbidity and mortality following bone marrow transplantation.² Additionally, BMT carries no guarantee of success in eradicating a recipient's underlying disease. This kind of uncertainty about success and threat to life serve as significant source of stress for patients as well as their families who are involved in bone marrow transplantation.³

Many psychometric studies, using standardized instruments of measurement, have demonstrated emotional distress,⁴ psychiatric symptoms,⁵ and affective disturbances such as anxiety/depression following BMT.⁶⁻⁸ Booth-Jones *et al.*⁹ studied cognitive functioning following blood and bone marrow transplantation and found 51% had mild impairment and 28% moderate to severe impairment.

Psychosocial variables, such as depression and social support, may affect the outcome of BMT itself, as well as

subsequent

survival.¹⁰ Sullivan reported that mortality was associated with psychological factors prior to blood and bone marrow transplantation.¹¹ Knowledge of psychiatric issues may be helpful in early recognition and appropriate treatment, which may, in turn, affect successful outcome of the procedure.

The purpose of this study was to identify psychiatric illnesses encountered during bone marrow transplantation.

PATIENTS AND METHODS

This cross-sectional study was conducted during the period of three years from December 2002 to December 2005 at Bismillah Taquee Institute of Health Sciences and Blood Diseases Centre, Karachi. The potential cases that were planned for blood and bone marrow transplantation underwent detailed physical examination and thorough laboratory investigations. Patients once accepted for BMT by transplant physician, were enrolled in the study, if they fulfilled the inclusion criteria.

Patients with history of previous psychiatric illness, history of alcoholism, drug abuse, organic cases associated with physical illness or drugs side effects, and those with age less than 15 years were excluded from the study.

The psychiatric assessment comprised of a semi-structured interview, based on Present Status Examination (PSE). The psychiatric diagnosis was made on the basis of International Classification of Diseases (ICD-10)¹² system of classification,

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devised by W.H.O. Informed consent was taken from all the enrolled cases.

At the time of admission the enrolled cases were subjected to detailed assessment regarding demographical data, psychiatric history and mental status examination in the bone marrow transplant unit where patients were kept for 4-6 weeks. Later on, assessment was carried out, a day before and on the day of transplantation, and then it was done twice or thrice a week or whenever the hospital staff felt the need of psychiatric intervention. The screened cases were subjected to psychiatric treatment including pharmacotherapy and/or psychotherapy accordingly. Statistical analysis was done through SPSS computer software (version 10.0).

RESULTS

Eighty patients were enrolled in this study. Sixty (75%) were males and 20 (25%) females. Regarding hematological/oncological diagnoses of the patients, who were found to be associated with psychiatric disorders, 11 out of 30 patients were suffering from benign disorders.

During the period of isolation, different psychiatric signs and symptoms, including anxiety, fear, hopelessness, guilt, irritability, loss of sleep, hallucination and confusion etc. were observed in 50% of cases. Thirty (37.5%) patients met the psychiatric diagnostic criteria, based on ICD-10 system of classification. Male to female ratio was 3:1, whereas majority of patients (50%) were of young age group (15 to 24 years). Sociodemographic variables and hematological /oncological diagnosis is shown in Table I while association of gender with psychiatric diagnosis is shown in Table II.

Table I: Demographic characteristics of patients associated with psychiatric disorders.

S. No.	Demographic Characters	Category	N	%
1	Age (in years)	15 – 24	15	50
		25 – 34	09	30
		35 – 44	06	20
2	Gender	Male	20	66.6
		Female	10	33.3
3	Education	Illiterate	07	23.33
		Primary	11	36.67
		Secondary	06	20.00
		Graduate	04	13.33
		Master	02	6.67
4	Employment	Permanent	12	40.00
		Part-time	02	6.67
		Housewife	05	16.67
		Retired	02	6.67
		Unemployed	04	13.33
		Others	05	16.66
5	Marital Status	Married	19	63.33
		Unmarried	07	23.33
		Divorced	03	10.00
		Separated	01	3.34
6	Haematological/ oncological diagnosis	1) Aplastic anemia	10	33.40
		2) Acute myeloid leukemia	07	23.30
		3) Chronic myeloid leukemia	06	20.00
		4) Acute lymphocytic leukemia	03	3.30
		5) Non-Hodgkin's lymphoma	01	3.30
		6) Paroxysmal nocturnal haemoglobinuria	01	3.30
		7) Ewing's sarcoma	01	3.30
		8) Multiple myeloma	01	3.30

Table II: Psychiatric diagnosis with gender.

Psychiatric diagnosis	Females	Males	Total	Percent
1. Adjustment disorder	04	08	12	40.00
2. Depressive illness	02	05	07	23.33
3. Generalized anxiety disorder	01	02	03	10.00
4. Acute psychotic disorder	02	01	03	10.00
5. Acute confusional state (delirium)	01	02	03	10.00
6. Depressive psychosis	0	02	02	6.67
Total	10	20	30	100.00

Regarding screening of psychiatric diagnosis, it was found that adjustment disorder (mixed anxiety and depressive reaction) was the most frequent diagnosis Table II, followed by depressive illness. Rest of the cases had acute psychotic disorder, generalized anxiety disorder, acute confusional state (delirium) and depressive psychosis. The psychiatric symptoms were observed within 24 hours after transplantation procedure in 66.6% (n=20) of patients. Sixty percent (n=18) required psychotropic medicines in addition to counseling and psychotherapy while 40% (n=12) only received psychological treatment without medication. Psychiatric symptoms settled in 80% (n=24) of cases during their stay in BMT unit. Luckily, all patients were alive when discharged from bone marrow transplantation unit.

Psychiatric diagnostic data were analyzed by statistical software SPSS (version 10.0). The 95% confidence interval, mean (μ) age of the subjects was 26.5 \pm 15.62 years.

DISCUSSION

Bone marrow transplantation represents a highly aggressive and demanding medical therapy that has a profound impact at a physical and psychological level.¹³ Keeping the patient in isolated room for more than a month or so and reverse barrier nursing¹⁴ are additional stress for patient who undergo the procedure. It is believed that stress of any kind may provoke the psychiatric disorders.¹⁵

To our knowledge, this is the first study reported on this topic from Pakistan. In this study, 37.5% (n=30) patients experienced psychiatric disorders during the early transplantation period. Interestingly higher percentage (54% and 41%) of psychiatric morbidity was observed in studies carried out by Leigh *et al.*¹⁶ and Sasaki¹⁷ respectively. Another study carried out on large number of patients (n=220) revealed 44.1% prevalence rate of psychiatric disorders.¹⁸

Regarding diagnostic breakup among transplant patients, adjustment disorders (mixed anxiety and depressive reaction) was the most frequent diagnosis (40%) in our study, which is similar to research of Sasaki¹⁷ who also noted adjustment disorder on the top of the list. Jenkin *et al.*¹⁹ observed higher prevalence (40%) of depression in her study, while depressive illness was the second highest psychiatric morbidity in our research. In screening of cancer patients, who underwent BMT, Kirch *et al.*²⁰ observed (34.7%) were having adjustment disorder, 11.6% with major depression and 5.3% with generalized anxiety disorder among other psychiatric disorders. Surprisingly, Soussain *et al.*²¹ observed that majority of patients appeared to be mentally prepared and tolerant during transplantation and very few patients observed psychological problems. He concluded that psychological

problems encountered in such cases were related to personality and personal history of the patients. In this study, majority of patients observed psychiatric symptoms within 24 hours posttransplantation period. The same was observed on study carried out by Illescas - Rico *et al.*²² Sasaki¹⁷ also noted that psychiatric disorders developed after transplantation in majority of cases (68.75%). This indicates that posttransplantation period would be highly stressful, which might be due to apprehensive expectation and hyper vigilance state.

No death was reported during the period of isolation in this study. Sasaki¹⁷ also observed no death when discharged from BMT, while one death was reported at one month period in a study carried out by Illescas - Rico²²

Interestingly, in this study, younger patients (15-24 years), who comprised of 50% samples, experienced psychiatric problems more than the elderly during transplantation. Study carried out by Prieto *et al.*²³ in 220 patients who received stem cell transplantation observed that younger age is one of the risk factor associated with psychiatric disorder in BMT. This clearly reflects the more stress observed in younger population secondary to transplantation. Regarding gender, it is believed that psychiatric disorders are significantly more common in females than males.²⁴ In this study, there was no evidence that psychiatric diagnosis with gender was statistically significant.

The limitations of the present study should be borne in mind which include relatively small sample size, single center study and limited time period i.e. during the isolation period in bone marrow transplant unit. On the basis of present study and keeping in mind the level of psychosocial status of our country, it is strongly recommended that such patients should be subjected to psychiatric assessment and counseling much before transplantation (4 to 6 months).

CONCLUSION

High frequency of psychiatric disorders was observed in bone marrow transplant patients with hematological/oncological illness during the procedure. This clearly indicates the importance of psychiatric intervention during the period of isolation.

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