

## Study of Anxiety among Thalassemia Major Adolescent Patients

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### ABSTRACT

**Background:** Beta ( $\beta$ ) thalassemia major is most common monogenic disorder in the world. Transfusion dependent thalassemia major patients are at risk of iron overload and hence its associated complications. Thalassemia is a major sanitary problem not only for the patients and their families but also for each country's public health systems with regard to treatment expenses including regular injections, iron chelating agents, frequent hospitalizations and other medical consistencies and they are vulnerable to, social and psychological problems. **Objectives:** To determine prevalence and severity of anxiety in transfusion dependent Beta thalassemia major patients attending a tertiary care hospital. **Materials and Methods:** The study was done at a tertiary care teaching hospital in a tertiary care hospital. Thalassemia major patients who received blood transfusions at 2 to 4 weeks interval in the hospital were included in this study. Clinical assessment of each child was done and psychiatric illness was diagnosed using ICD-10 DCR. Hamilton Anxiety rating scale (HAM-A) were used. **Result:** Males (80%) outnumbered females (20%) with male to female ratio of 4:1. Nearly half of the study population was aged between 10 to 12 years. Majority of the patients had one blood transfusion per month (91.43%). Out of 31 patients, 25 were males and 6 were females. Age range was 10 -18 years with mean age of  $12.45 \pm 2.41$  years..The prevalence of anxiety was 38.71 % with majority showing mild severity followed by mild to moderate severity. **Conclusion:** This study help to know the severity of the anxiety in  $\beta$  thalassemia patients who are chronically ill and have prolonged treatment. Early assessment and treatment by psychiatrist will surely help to have good psychological condition.

**Keywords:**  $\beta$  Thalassemia, Anxiety,

**B**eta ( $\beta$ ) thalassemia syndromes are a group of hereditary blood disorders characterized by reduced or absent  $\beta$  globin chain synthesis, resulting in reduced hemoglobin (Hb) in red blood cells (RBC), decreased RBC production and anemia. Most thalassemias are inherited as recessive

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traits. Three clinical and hematological conditions of increasing severity are recognized, i.e.,  $\beta$  thalassemia carrier state, thalassemia intermedia, and thalassemia major.[1]

These patients with BTM require regular blood transfusions to survive. Regular transfusion is recommended to maintain a pretransfusion hemoglobin threshold not exceeding 9.5 g/dl. The combination of regular blood transfusions along with chelation therapy has dramatically increased the life expectancy of thalasseemics.

Beta thalassemia major has a great negative impact on the well being of the patients. Affected children face many stresses in their whole life, including frequent blood samplings for laboratory tests, multiple transfusions and frequent subcutaneous injections and oral therapy of iron chelator drugs, which altogether make the patient susceptible to psychiatric burden namely depression and anxiety. Moreover, restrictions in social activities, fear, pain and worries about diagnostic procedures and transfusion every 2-4 weeks, which always induce stress leads to sickness absenteeism and poor academic school performance. Different studies have shown psychological disorders is more common in major thalassemia, and about 80% of them suffer from at least one mental disorder. The reports indicated the most common disorders were imaged of self-disfigurement, anxiety and major depressive disorder .Very limited research has been conducted in the field of psychiatric illness in Beta thalassemia major patients in India [2]

Studies showed that chronic, physically limiting diseases such as thalassemia could have undesirable effects on mental health of patients and their families and lead to mental and emotional problems among them.[3] Nevertheless, there has been little discussion on social-mental aspects of Thalassemia major.

Anxiety disorders are the most common group of psychiatric illnesses in children and adolescent age group [4,5]. Anxiety is a blanket term covering several different forms of abnormal and pathological fear. Anxiety disorders are often debilitating chronic conditions, which can be present from an early age or begin suddenly after a triggering event or due to chronic/acute stress. Here the adolescent suffering from the Beta ( $\beta$ ) thalassemia syndromes are highly vulnerable to have psychological stress. The prevalence of anxiety among children according to following literature shows range between 2-15% .

A study conducted by Mazzone L et al, in Italy showed that the average prevalence of anxiety disorder in children belonging to 3 age groups was 7.3%.The prevalence of anxiety disorder in each age group children were 2.3% in 8-10 years, 7.9% in 11-13 years and 15.3% in 14-16 years.[6] A study conducted by Akapan MU et al in Nigeria showed prevalence rate of anxiety disorder was 10.28%.[6 ] According to Haneesh K et al, showed that ratio of male and female in students diagnosed with anxiety disorder was 0.69:1.8 [7]

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This data may help to understand the underlying psychiatry illness among these patients and relevant treatment initiated at appropriate time.

### **MATERIALS AND METHODS**

The present cross-sectional study was done at a tertiary care teaching hospital from North Karnataka from January 2014 to December 2014. Universal sampling method was used and 35  $\beta$  thalassemia major patients who received blood transfusions were selected during the study period. Prior to the commencement, ethical clearance for the study was obtained from the Institute ethics committee.

Thalassemia major patients who received blood transfusions at 2 to 4 weeks interval in the hospital were included in this study. A total of 31 patients with transfusion dependent thalassemia major were included in the study.

Inclusion Criteria were all known diagnosed cases of thalassemia major who are aged 10-18 years and have received blood transfusions and admitted in hospital at two to four weeks intervals with or without iron chelation therapy. Exclusion Criteria were patients who are known cases of other types of anemias requiring repeated blood transfusions or hospital admissions. Clinical assessment of each child was done and psychiatric illness was diagnosed using ICD-10 DCR. Hamilton Anxiety rating scale (HAM-A) were used to assess the severity of anxiety among all the study participants.

Patients who are known cases of other types of thalassemias and hemoglobinopathies and patients on transfusion dependent anemia other than  $\beta$  thalassemia were excluded from the study. The data obtained was coded and entered into Microsoft Excel Spreadsheet. Statistical analysis done by using WHO Epi Info 7 software and results tabulated. Categorical data was expressed in terms of rates, ratios and percentage. Continuous data was expressed as Mean  $\pm$  standard deviation, median and range.

### **RESULTS**

This one year cross-sectional study was done in the Department of Pathology and Psychiatry from January 2014 to December 2014. A total of 31 patients registered under Blood Bank with thalassemia major were included in the study. The commonest age group was 10 to 12 years comprised of 58.06 % of the patients followed by 13-15 years age group (29.03 %). Majority (80%) of the patients were males and the male to female ratio was 4:1. HAMA scores revealed No anxiety in 19 patients (61.29 %). Mild anxiety was seen in 32.26 % patients followed by 6.45 % patients who had Mild to moderate anxiety. None of the patients had severe anxiety as shown in Table 3. In a study done by Hashemi et al, anxiety was seen in 41.2% as compared to our study 38.71 %.

### DISCUSSION

$\beta$  thalassemia major is a homozygous state which causes hemolytic anemia demanding regular blood transfusions. The availability of safe blood transfusions with adjuvant chelation therapy has facilitated and extended the survival rates of these patients. Multiple physical problems in thalassemia patients encouraged researchers to examine mental specifications of these patients. Different studies have shown psychological disorders is more common in thalassemia major. Environment and social factors, especially family, play important role in improving and decreasing depression and anxiety of these patients. [3] Some studies demonstrate that 80% of thalassemia major patients at least suffer from one psychiatry disorder.[8] HAMA scores include the following for scoring the severity: anxious mood, tension, fears, insomnia, intellectual, depressed mood, somatic (muscular), somatic (sensory) symptoms, cardiovascular symptoms, respiratory symptoms, gastrointestinal symptoms, autonomic symptoms. The scale is from 0 to 4 for each parameter. HAMA severity was graded based on total score as mild severe anxiety (< 17), mild to moderate anxiety (18-24) and moderate to severe anxiety (25 -30) as shown in Table 2. Children more frequently develop Social withdrawal; complain of psychosomatic symptoms, such as headache, abdominal pain or show irritability, poor school performance, social isolation and inability to handle frustration.

Cognitive-behavioral therapy which can be an effective psychological approach because it contributes to treatment compliance, reduces emotional burden of disease and improves quality of life.

### CONCLUSION

The patients with transfusion dependent  $\beta$  thalassemia major are at risk of developing psychiatric illness. The following measures would be optimum for the thalassemia care. Programs that provide acceptable care, including transfusion of safe blood and supportive therapy. Thalassaemia patients require lifelong psychological support for prevention of mental health issues. Mood disorders of children and adolescent are likely to continue into adulthood. Identification, assessment and treatment at earlier stages are warranted for achievement a better prognosis in adulthood. Regular screening for symptoms is essential to identify at-risk individuals so as to provide appropriate psychological support with ultimate goal to improve both emotional and physical health. Overall, the present study showed risk of anxiety in these group of patients using optimum scales for early detection of illness and prevent the consequences.

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**Table 1 Demographic data.**

Characteristics	Sub-groups	Total	
		No.	%
Age group (Years)	10 to 12	18	58.06
	13 to 15	09	29.03
	16 to 18	04	12.91
	Total	31	100.00
Sex	Male	26	80.00
	Female	05	20.00
	Total	31	100.00

**Table 2 Grading of severity of anxiety on HAMA scores.**

Total HAM-A Score	Severity
<17	Mild severity
18-24	Mild to moderate
25-30	Moderate to severe

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*Table 3 Severity of anxiety among study participants.*

Anxiety Grade	Frequency	Percent
No Anxiety	19	61.29 %
Mild Severity	10	32.26 %
Mild To Moderate severity	2	6.45 %
Moderate To Severe	0	0.00 %

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