Original Article

Knowledge, attitude and practice of final year medical students regarding thalassemia major

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Objective: To assess the knowledge, attitude and practice of final year medical students regarding thalassemia major.

Methodology: This descriptive cross sectional study was conducted in six different public and private sector medical colleges in Rawalpindi and Islamabad from January to June 2018. A total of 430 students of final year MBBS after giving consent were included in study with convenient, random and non-probable sampling. Knowledge, attitude and practice (KAP) score was analysed from the response from students. Statistical analysis was performed by SPSS version 23.

Results: The mean score of knowledge was 11.25±2.59, mean score of attitude was 7.72±1.45 and mean score of practice was 2.33±1.69. About 54.7% of medical students had adequate and 45.3% had inadequate knowledge about thalassemia, 65.8% had positive and 34.2% had negative attitude and only 5.3% had good practice and 94.7% had bad practices.

Conclusion: This study showed adequate knowledge, positive attitude but poor practice of young medical students towards thalassemia major. This can be improved by further emphasis on thalassemia major in undergraduate medical curriculum. (Rawal Med J 202;45:461-465).

Keywords: Thalassemia, knowledge, attitude, practice, medical students.

INTRODUCTION

Thalassemia is a hemoglobinopathy characterised by defective synthesis of hemoglobin chains.[1] Hemoglobin molecule has two alpha and two beta chains so thalassemia is also characterized as alpha thalassemia and beta thalassemia. Alpha thalassemia is due to defective synthesis or absence of alpha chains and beta thalassemia is due to defective or absent synthesis of beta-globin chains.[2] Thalassemia is inherited as an autosomal recessive trait so there is 25% chance in every pregnancy to have a baby with Thalassemia major if both the parents are carriers for the disease.[3] Children with thalassemia major usually present in first year of their life with progressive pallor and hepatosplenomegaly.

Diagnosis is usually suggested by microcytic, hypochromic anemia on complete blood film and confirmed by Hemoglobin electrophoresis and polymerase chain reaction (PCR). Patients with thalassemia major require lifelong blood transfusions leading to iron overload which then requires regular chelation with deferoxamine.[4] Some may require splenectomy later in life because of massive splenomegaly and hypersplenism. Life expectancy of patients with Thalassemia major is reduced and majority of them usually succumb to its complications in second or third decade of life.[5] Prevention from this disease can be achieved through premarital screening of individuals, premarital counselling of carriers and prenatal diagnosis in successive pregnancies of carrier couples.[6]

Thalassemia is a common illness in Pakistan with Beta (β) Thalassemia being the predominant type. Rate of thalassemia carriers in Pakistan is 5-8% and 5000 new cases are diagnosed per year[7] and 25000 patients are registered with Thalassemia Federation.[8] This alarming high rate of carriers and patients is attributed to high ratio of consanguineous marriages among families and marriages among carriers in different families as there is no formal system of premarital counselling and testing in our society. The only way left to prevention is prenatal diagnosis by analysing DNA of fetus via chorionic villus sampling in 10th to 12th week of gestation and termination of the affected pregnancy. It is a safe procedure for prenatal diagnosis in early pregnancy.

This study was performed with the aim of increasing awareness among young medical students regarding thalassemia major.

METHODOLOGY

This descriptive, cross sectional study was carried out in six different public and private sector medical colleges in Rawalpindi and Islamabad from January to June 2018. Students of final year MBBS of both genders were included. Total 430 students were included with convenient, random and nonprobable sampling from all medical colleges. Refusal to participate in the study was the only exclusion criteria. The study was approved by ethical committee of Yusra Medical and Dental College and an Informed consent was taken from all participants. A predesigned pretested validated Performa was used which had three parts.[9] The first part was assessed knowledge. Total 15 items were asked. Answers were as multiple choices or as Yes/No. Each correct answer was scored as 1. Knowledge score of more than or equal to 12(80%) was considered as adequate when the participants were able to answer correctly 12 out of 15 questions. The following questions regarding knowledge were asked (1) mode of inheritance (2) role of consanguinity in disease (3) gender distribution (4) alpha thalassemia is due to absence of which chain (5) beta thalassemia is due to absence of which chain (6) number of gene mutation in thalassemia major (7) number of gene mutation in thalassemia trait (8) how to diagnose (9) management of disease (10) methods of prevention (11) chances of having thalassemic baby if both parents carrier (12) chances of having thalassemic baby if one parent carrier (13) most common type of thalassemia in Pakistan (14) life expectancy of patient with thalassemia major and (15) life expectancy of patient having thalassemia trait.

The second part was regarding the attitude which was assessed by asking 10 questions. Each correct response was scored as 1. Positive attitude was interpreted having score more than or equal to 8(80%). The participants were asked (1) will you marry a thalassemia carrier (2) prefer consanguineous marriage (3) want to test yourself for thalassemia (4) will you test your family members for thalassemia (5) do you recommend mandatory premarital counselling/screening (6) both carrier individuals should marry (7) carrier couple should have pregnancy (8) carrier parents should have prenatal diagnosis (9) medical termination of pregnancy in case of positive prenatal diagnosis in initial 120 days of pregnancy and (10) will you donate blood for thalassemia patients?

The third part was regarding practices and had 8 statements with 1 score for each statement. Practices were considered as good with score equal or more than 6 i.e.75% and bad if score was less than 6 i.e. 75%. They were asked (1) tested yourself for thalassemia (2) tested your family members for thalassemia (3) ever advised test for thalassemia (4) will you marry a thalassemia carrier in family (5) ever advised/done premarital carrier screening in family (6) ever done prenatal diagnosis for thalassemia major in family (7) ever donated blood for thalassemia patients and (8) attended a lecture/seminar on thalassemia major.

Statistical Analysis: Data were analysed using SPSS version 23. Descriptive statistics like mean, standard deviation, median and percentage were calculated, as required.

RESULTS

The study included 430 medical students. Regarding knowledge, the mean score was 11.25±2.59 out of total score of 15 and 54.7% of medical students had adequate knowledge. Mean score of attitude was 7.72±1.45 out of total score of 10 and 65.8% had positive attitude. Mean score of practice was 2.33±1.69 out of total score of 8 and only 5.3% students had good practice regarding thalassemia (Table 1).

The most knowledgeable questions were the life expectancy of a patient with thalassemia major and the role of consanguinity in disease which 94.2 and 94% respectively correctly answered. Least knowledgeable questions were about the chances of having a baby with thalassemia if both parents or a single parent is the disease carrier (Table 2).

Table 1. Knowledge, Attitude and Practice scores.

Score	Number (%)
Knowledge (15)	
Adequate (≥12 or 80%)	235(54.7%)
Inadequate (<12 or 80%)	195(45.3%)
Attitude (10)	
Positive (≥8 or 80%)	283(65.8%)
Negative (<8 or 80%)	147(34.2%)
Practice (8)	
Good (≥6 or 75%)	23(5.3%)
Bad (<6 or 75%)	407(94.7%)

Table 2. Participants knowledge regarding Thalassemia.

Correct knowledge	Number (%)
Inheritance – Autosomal recessive	285(66.3%)
Role of consanguinity in disease – increased	404 (94%)
Gender distribution –equal in both	206(47.9%)
Alpha thalassemia is due to absent alpha chains	379(88.1%)
Beta thalassemia due to absent beta chains	377(87.7%)
Thalassemia major (patient) has 2 genes mutation – yes	387(90%)
Thalassemia minor (patient) has 1 gene mutation - yes	360(83.7%)
Diagnosis – Complete blood picture, Hb Electrophoresis	315(73.2%)
Management – Regular blood transfusion ,Chelation	368(85.5%)
Prevention-Premarital counselling, Testing and prenatal diagnosis	333(77.4%)
Chances of having thalassemic baby in every pregnancy if both parents carriers - 25%	131(30.4%)
Chances of having thalassemic baby in every pregnancy if one parent carrier - 0 %	117(27.2%)
Most common type of thalassemia in Pakistan – β thalassemia	399(92.7%)
Life expectancy of thalassemia major patient- less than normal	405(94.2%)
Life expectancy of thalassemia carrier – normal	385(89.5%)

Table 3. Participants attitude regarding Thalassemia.

Positive attitude	Number (%)
Will marry a thalassemia carrier	106(24.7%)
No preference of consanguineous marriage	357(83%)
Test yourself for thalassemia	385(89.5%)
Like to test family members for thalassemia	372(86.5%)
Recommend mandatory premarital counselling/screening	396(92%)
Carriers should not marry	385(89.5%)
Carrier couple should not have pregnancy	206(47.9%)
Carrier parents should have prenatal diagnosis	401(93.2%)
Medical termination of pregnancy in case of positive prenatal diagnosis (initial 120days of pregnancy)	334(77.7%)
Will you donate blood for patients of thalassemia	376(87.4%)

Table 4. Participants practices regarding Thalassemia.

Good practices for thalassemia	Number (%)
Tested yourself for thalassemia	83(19.3%)
Tested your family members for thalassemia	66(15.3%)
Ever advised test for thalassemia	127(29.5%)
Marry a carrier in family	82(19.1%)
Advised/done premarital carrier screening in family	101(23.5%)
Done prenatal diagnosis for thalassemia in family members	65(15.1%)
Ever donated blood for thalassemia patients	177(41.2%)
Ever attended a lecture/seminar on Thalassemia	299(69.5%)

The highest positive attitude was towards the prenatal diagnosis in the carrier couple of 93.2% followed by recommendation of premarital counselling and screening in the carriers by 92%. Students showed a negative attitude in marrying a thalassemia carrier as only 24.7% agreed to do so (Table 3). The most frequent good practice among 69.5% of the students was attending a lecture/seminar on thalassemia followed by donating blood to thalassemia patients by 41% of the participants (Table 4).

DISCUSSION

Majority of participants in this study had good knowledge about thalassemia, as 54.7% of the had an adequate knowledge about thalassemia. A study

done by Mirza et al in young Pakistani nonmedical university students, 54.5% had an adequate knowledge about thalassemia.[10] Another study on Indian medical students of first and second year MBBS by Pujani et al showed excellent scores of 13 (out of 15) by 36.2% and good scores 10-12(out of 15) by 52.1% students.[11] Median knowledge score among first year Indonesian medical students was 9 (out of 18) by Dewanto et al and were categorised as having moderate knowledge.[12] However, a study done in young medical doctors in India showed adequate knowledge by 78.72% of the participants showing much better knowledge than medical students.[9]

We found that 66.3% students in our study had correct knowledge about the inheritance pattern of the disease as compared to 85.11% among Indian junior doctors.[9] Malaysian students had poor knowledge about inheritance of disease.[13]

Only 27.2% medical students in this study knew that there is 0% chance of having a thalassemic baby if only one parent is a carrier as compared to 59.5% in Indian young doctors.[9] Similarly, only 30.4% students correctly responded that there is 25% chance of having a thalassemic child if both the parents are carriers as compared to 59% young Indian doctors.[9]

Knowledge of the students regarding treatment and prognosis of the disease was good in this study and in Indian medical doctors but was poor among students in Malaysia.[13] Majority of the participants were aware of the methods of the prevention of thalassemia in this study as well as in Indian study and study by Mirza et al in Pakistan.[9,10]

In our study, 65.8% students had a positive attitude towards thalassemia as compared to 59% in future health care providers in Malaysia.[13] It was much higher in Indian doctors as 80.85%.[9] In our study, 89.5% of participants wanted to test themselves and 86.5% wanted to screen their family members as compared to 80.8% and 82.4% respectively in young Indian doctors, in contrast to only 60.4% and 69.1% of non medical university students in Pakistan.[9,10]

Students in our study were strongly in favour of premarital screening and prenatal diagnosis and 92% recommended mandatory premarital counselling and screening whereas 93% recommended prenatal diagnosis for the carrier couple as compared to 85.1% and 85.6% respectively among young Indian doctors.[9]

Only 5.3% of our study population had good practices about thalassemia in comparison to 33.5% of the Indian young doctors.[9] Only 19.3% students in our study had tested themselves for thalassemia as compared to 46.9% Indian doctors and 55.35% medical students in Malaysian study.[9,14] 41.2% of the students had already donated blood for thalassemia patients as compared to 38.3% young Indian doctors and 25.9% of the participants amongst general population in a study in Kolkata India.[15] The only good practice was attending a lecture or seminar on thalassemia by 69.5% participants as compared to 50% Indian young doctors.[9]

CONCLUSION

This study revealed adequate knowledge, positive attitude but poor practice of young medical students towards thalassemia. These students as future doctors will provide diagnostic, therapeutic and counselling services to thalassemic patients and can play an important role in prevention of this disease, which is increasing by alarming rate. We therefore, recommend further emphasis on thalassemia in undergraduate medical curriculum and more interaction of medical students with thalassemia patients and their families in hospitals and thalassemia centers where these children receive blood transfusions and other services to improve their KAP score as future doctors.

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