ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 4, Issue – 6, December - 2019, Page No. : 41 - 48

Assessment of Knowledge, Attitude and Practices Related to Thalassemia among the Interns and Residents of Various Medical Specialties in Pakistan

Saleem U[1], Maab R[2], Roshan TM[3], Safdar S[4].

[1]Department of Pathology, Nishtar Medical University (NMU), Multan

[2]Department of Pathology, King Edward Medical University (KEMU), Lahore.

[3]Department of Pathology and Laboratory medicine, University of Calgary, Alberta, Canada.

[4]PHRC, Nishtar Medical University, Multan

Corresponding Author: Saleem U**,** Department of Pathology, Nishtar Medical University (NMU), Multan

Type of Publication: Original Research Article

Conflicts Of Interest: Nil

Abstract

Objective: The primary objective was to investigate the knowledge and understanding regarding β-thalassemia among internees and resident of different specialities from various parts of Punjab. The secondary objective of the study was to identify and fill any gaps in knowledge about thalassemia among junior healthcare providers.

This will indirectly discern the effectiveness of awareness programs and will identify areas for further improvement and training.

Study Design: Descriptive study

Place of study: A multi centric cross sectional questionnaire based study was conducted in two cities and institutions of Pakistan: Nishtar Medical University (NMU), Multan and King Edward Medical University (KEMU), Lahore

Methodology: 500 interns and residents from internal medicine, pediatric medicine, obstetrics/ gynecology and general surgery participated. The questionnaire comprised of 3 sections assessing knowledge, attitude and practice by 18, 6 and 20 questions respectively.

Results: Our results showed adequate scores of knowledge and practice in internal medicine and pediatrics department and inadequate scores for knowledge and practice in surgical health staff (*P* value <0.001). However, attitude scores were non satisfactory in all departments of both institutes. Also, KEMU participants surpassed NMU participants in having a sound knowledge and updated practice scores regarding thalassemia (*P* value <0.001).

Conclusion: There is variability in adequacy of knowledge about severity and impact of β thalassemia major among the healthcare providers in Pakistan.

Keywords: Thalassemia, pediatric medicine, adult medicine, obstetrics/gynecology, general surgery, interns, residents, Pakistan

Introduction

Thalassemia is a heterogeneous group of autosomal recessive disorders of defective hemoglobin synthesis in which one or more globin chains are either absent or are produced at a reduced rate. According to the effected globin chain, it is categorized as α, β, γ or δ thalassemia. Thalassemia syndromes are the most common single gene disorders in the world with an

estimated 250 million people (4% of world population) being carriers for gene of thalassemia or abnormal hemoglobins[1]. Thalassemia is highly prevalent in a belt extending from Mediterranean region to the Middle East, Indian Subcontinent, Southeast Asia and parts of Africa[2].

Pakistan is included in the "Thalassemia belt". The first description of thalassemia in Pakistan dates back to 1960 when Raheemtoola described thalassemia in Pakistani children[3]. A carrier frequency of 4% for β-thalassemia in Pathans was reported for the first time in 1968 by Stern et al[4]. The prevalence was under reported for many years due to limited diagnostic facilities. However in sixties and seventies, a fairly good number of epidemiological studies emerged. According to local studies, 5% of our population is carrier for β-thalassemia with a slight variation between different ethnic groups[5]. Every year an alarming number of 5000 new births affected by β-thalassemia major take place in our country which means that total number of thalassemics may fall between 50,000 to 100,000. Diagnosing these 10 million carriers in a population of over 200 million is a herculean task. Provision of quality treatment of safe blood transfusion, iron chelation and stem cell transplantation along with psychosocial support to such a huge number of patients is also a very challenging venture especially when our health expenditure is only 2% of GDP[6,7].

Though our part of the world is plagued by morbidity and mortality related to communicable diseases and malnutrition, however the grave repercussions of non-communicable diseases like thalassemia on the affected population cannot be denied. Hence, prevention becomes a fundamental requirement in order to reduce the disease burden on health care. Mediterranean regions and Iran have brought down the birth rate of thalassemia to almost zero by successful implementation of thalassemia prevention programs. National action plan for thalassemia prevention in Pakistan was initiated two decades ago; however the progress has been slow. The role of health care providers in effective implementation of such prevention programs is of paramount importance. For this, we need to see if our health care providers are adequately trained in this area.

This study primarily investigated the knowledge/understanding of β-thalassemia in our health care providers. The secondary objectives were to identify knowledge gaps among health care providers and to identify measures that need to be taken to improve knowledge of thalassemia.

Methodology

A multi centric cross sectional questionnaire based survey was conducted on interns and residents of two teaching institutions of Pakistan affiliated with tertiary care hospitals namely Nishtar Medical University& Hospital, Multan and King Edward Medical University & Mayo Hospital Lahore. Health care providers from various departments including pediatric medicine, adult medicine, gynecology and general surgery were enrolled in the study. The purpose of the study was explained in detail to the participants. Written informed consent was taken and anonymity and confidentiality was ensured. Approval was taken from institutional review board. A structured questionnaire was designed and distributed to health care workers by a research team with items not contradicting our social and cultural norms. Close ended questions in a check list format were designed to assess knowledge, attitude and practice among participants. The questionnaire comprised of three sections: 1st part was concerned with knowledge assessment of the respondents through 18

questions, 2nd part inquired about attitude by 6 questions and 3rd part assessed practice by 20 questions. The questionnaire was validated by piloting among 25 randomly selected participants of each speciality. These participants were not included in the whole study sample. The reliability was assessed by test-retest method. Content and construct validity, as well as inter-rater reliability were high (kappa = 0.81)

Operational definition

Responses for knowledge, attitude and practice were assigned a score of good, satisfactory and poor in order to standardize the results on the basis of >70% correct responses, 50-70% correct responses and <50% correct responses respectively as follows:

Knowledge score (18 items)		Attitude score (6 items)		Practice score (20 items)	
Good	>13	Good	>4	Good	>14
Satisfactory	9-13	Satisfactory	3-4	Satisfactory	10-14
Poor	<9	Poor	<3	Poor	<10

Statistical analysis

Statistical analysis was performed on 500 completed responses using SPSS version 23. Frequencies and mean with standard deviation were calculated for numerical values. Chi square test was applied for categorical variables. *P* value of <0.01 was taken to be significant.

Results

500 participants were enrolled in the study which included 280 house officers and 220 residents with an intern to resident ratio of 1.2:1. 62.6% of our participants were females. The study population was finely distributed among both institutions (299 from KEMU and 201 from NMU) with equal participation from each department (Figure#1)

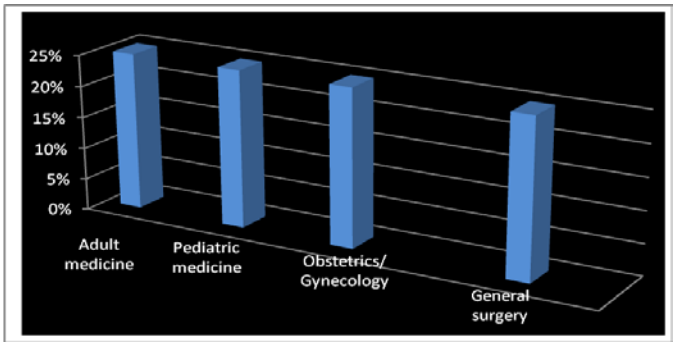

Figure 1: Distribution of study population in target departments

Our results indicated that 71.6% of respondents had a good knowledge, 23% had a good attitude and 26.4% had good practice scores regarding β-thalassemia (Table#1)

Knowledge score		**Attitude score**		**Practice score**	
Good	71.6%	Good	23%	Good	26.4%
Satisfactory	20.8%	Satisfactory	54.2%	Satisfactory	53.8%
Poor	7.6%	Poor	22.8%	Poor	19.8%

Table 1: Knowledge, attitude and practice scores

Maximum number of good scores was obtained from pediatric department followed by medicine department while maximum number of poor scores came from surgery department. This difference was statistically significant (*P* value<0.01) (Table#2)

Surprisingly, there was no significant difference between attitude scores in all specialities (*P* value 0.02) (Table#3)

Practice scores for thalassemia in target departments showed a similar pattern to knowledge scores (*P* value<0.01). Also practice scores varied significantly between house officers and residents (*P* value<0.01) (Table#4)

Variable	Adequacy of knowledge			Total	*P* value
	Good	Satisfactory	Poor		
Designation					
House officers	63	192	25	280	0.306
Residents	44	163	13	220	
Gender					
Male	30	140	17	187	0.06
Female	77	215	21	313	
Speciality					
Medicine	33	87	5	125	*<0.01*
Surgery	9	87	28	124	
Pediatrics	39	85	2	126	
Gynecology	26	96	3	125	

Table 2: Cumulative scores of both institutions regarding knowledge of thalassemia with respect to gender, designation and speciality

Variable	Adequacy of attitude			Total	*P* value
	Good	Satisfactory	Poor		
Designation					
House officers	72	148	60	280	0.312
Residents	44	123	53	220	
Gender					
Male	50	98	39	187	0.33
Female	66	173	74	313	
Speciality					
Medicine	37	66	22	125	0.02
Surgery	19	71	34	124	
Pediatrics	38	64	24	126	
Gynecology	22	70	33	125	

Table 3: Cumulative scores of both institutions regarding attitude of thalassemia with respect to gender, designation and speciality

Variable	Adequacy of practice			Total	*P* value
	Good	Satisfactory	Poor		
Designation					
House officers	63	139	78	280	*<0.01*
Residents	69	130	21	120	
Gender					
Male	39	105	43	187	0.07
Female	93	164	56	313	
Speciality					
Medicine	43	67	15	125	*<0.01*
Surgery	15	50	59	124	
Pediatrics	49	68	09	126	
Gynecology	25	84	16	125	

Table 4: Cumulative scores of both institutions regarding practice of thalassemia with respect to gender, designation and speciality

Comparison of scores between the two institutions revealed remarkable differences in knowledge and practice scores. KEMU participants had a sound knowledge and up to date practice patterns regarding thalassemia as compared to NMU (*P* value 0.009 and *P* value 0.001 respectively). But surprisingly, attitude scores of both institutions followed a similar pattern (*P* value 0.438) (Table#5)

Institution	Score			Total (n)	*P* value
	Good	Satisfactory	Poor		
Adequacy of knowledge					
KEMU	73	199	27	299	0.009
NMU	31	159	11	201	
Total	104	358	38	500	
Adequacy of attitude					
KEMU	66	169	64	299	

NMU	49	102	50	201	0.438
Total	115	271	114	500	
Adequacy of practice					
KEMU	97	156	46	299	0.001
NMU	35	118	48	201	
Total	132	269	99	500	

Table 5 : Comparison of scores of KEMU and NMU

Discussion

The importance of preventive strategies and creating awareness both in public and medical professionals has been long recognized to keep in check a serious health burden such as thalassemia[8,9].This is particularly relevant for a developing country like Pakistan where cost of treatment is high and beyond the reach of majority of patients[10,11]. The success stories of Mediterranean regions and Iran are leading examples for Pakistan[12]. The role of health care providers in successful and effective implementation of preventive programs is of central importance as they have direct interactions with effected families and are the most common source of information to the community[13]. Therefore, it is of prime importance that they should have a sound and updated knowledge regarding all aspects of the disease. Any misconception or lack of understanding has to be addressed so as to ensure their pivotal role in reducing the enormous burden by thalassemia on our health resources.

An extensive literature review showed that no such study has been conducted in the past especially in Pakistan. Majority of the previous researches involved medical students, non-medical students and parents of thalassemic children. Two studies of Pakistan, one conducted in Sir Ganga Ram Hospital Lahore in 2009 and other in Civil hospital Karachi in 2007 showed that knowledge of parents of thalassemic children about the disease and its prevention was inadequate[14,15]. One contributing factor for inadequate knowledge in parents of thalassemic children might be lack of awareness among medical professionals themselves.

This study is the first of its type to investigate knowledge of our health care providers regarding thalassemia and to identify any knowledge lapse. The outcome was expected to discern the areas of short comings and to identify measures that should be taken to improve the knowledge of our health care providers as this will in turn reflect on the awareness of general public. Therefore we conducted a knowledge, attitude and practice study in two different institutions of major cities of Pakistan.

Our results for knowledge assessment showed that the pediatric department followed by internal medicine department had the most up to date knowledge in both institutions. The results can be explained by the fact that the thalassemia centers are mainly supervised by pediatric departments and later the patients are referred to internal medicine after age of 12 years. Maximum number of poor knowledge scores was obtained from surgical interns and residents in our study, underlying reason might be lack of exposure to thalassemic patients as surgical intervention is infrequently opted in management of patients of thalassemia. Gynecology/ obstetrics department was in between the two ends of the spectrum. Though the gynecological department is involved in prenatal testing of thalassemia and has a vital role to play in counseling of the parents, their involvement in post natal diagnosis and management is minimal. In conclusion, the clinical exposure of the health care providers directly reflected onto their knowledge of the disease.

Attitude scores of our study population showed an overall similar attitude in both institutions. Though the overall attitude among respondents fell short of being

considered as adequate in both institutions, however pediatric and internal medicine departments had a better perspective of the disease as compared to their colleagues of obstetrics/gynecology and general surgery. It is concerning that overall attitude of our health care providers towards consanguineous marriages, prenatal diagnosis and decision of termination of pregnancy is still influenced by our social, cultural and religious pressures rather than the impact of the disease on our population.

Considering practice scores of our study population, again the pediatric and internal medicine department had the maximum number of correct responses followed by obstetrics/ gynecology and surgery in both institutions.

Comparing knowledge and practice scores of both institutions, KEMU participants surpassed NMU participants significantly in both having a sound knowledge and up dated practice patterns because KEMU and its affiliated hospital is one of the largest and centrally located health care centre of our country with a well-developed thalassemia centre. Lahore being the main centre with influx of patients from all over Punjab is far more established having major part of resources and facilities directed to it.

Comparison of the knowledge scores between interns and residents showed no significant difference (*P* value 0.306).The residents included in the study had 1-2 years of additional experience as compared to the interns. Though it did improve the clinical skills regarding management of the thalassemic patients, but the baseline knowledge more or less remained similar to the interns. We also couldn't find any difference of knowledge among male and female respondents (*P* value 0.06)

Over all attitude scores of our study population were low and not influenced by level of training, gender or speciality in either of the institution. It is concerning that our cultural norms and religious influences have an important role in shaping up of attitude towards hereditary diseases and their preventive measures.

It was noticed that with increased years of clinical exposure, the practice scores improved as the residents had significantly better correct response rates as compared to internees. Though we were able to get more good practice scores from our female respondents than male respondents, this difference was not statistically significant (*P* value 0.07).

We included interns and residents of internal medicine, pediatric medicine, obstetrics/gynecology and general surgery so as to give representation from all major specialities harboring most of the medical professionals. Also we conducted this study in two different cities and institutions. The rationale was a larger representation of study population and to see any difference in knowledge, attitude and practices among the central area and a relatively remote area of the country. We did find a statistically significant difference in knowledge and practice among two response groups (*P* value 0.001). This reflects the need to focus our attention to remote and lesser developed areas.

Conclusion and Future Directions

There is variability in adequacy of knowledge about severity and impact of β-thalassemia major among the healthcare providers in Pakistan. As it is a major public health issue of Pakistan, it is highly imperative that, regardless of the speciality, every doctor should have a sound knowledge about thalassemia in order to fulfill their responsibility of public education & awareness, identification of thalassemia by clinical features and a

complete blood count and a sound knowledge of referral centers of thalassemia. Also, there is low level of penetrance for recently approved pre-marital screening program for public and medical community alike. This current mindset and attitude has to be addressed by sensible and sincere policy making and effective implementation.

We recommend changes in undergraduate curriculum with emphasis on the diseases prevalent in local population. Frequent conduction of awareness seminars should be conducted not only for general public but for the medical fraternity as well, to incorporate deeper knowledge of major public health problems especially thalassemia in order to reduce the disease burden. Though a challenging task because of limited resources, the up gradation of remote centers should be a priority.

Abbreviations

KEMU	King Edward MedicalUniversity
NMU	Nishtar Medical University
WHO	World Health Organization
GDP	Gross Domestic Product
CBC	Complete blood count
RBC count	Red Blood Cell Count
RDW	Red Cell Distribution Width

Acknowledgements: Dr Khalid Usman, Dr Taimoor Chughtai, Dr Hina Zahra, Dr Nadir, Dr Rushaan

Disclosure: No relevant conflicts of interest to declare

References

1. Ahmed S. Genetic hemoglobin disorders in Pakistan.1st edition. GRC Publication: Rawalpindi 2018
2. Hoffbrand AV, Catovsky D, Tuddenham E GD, Green AR (ed.) Postgraduate hematology.6th edition. Wiley Blackwell. 2011
3. Raheemtoola RJ 91960) Cooley's anemia in Pakistani children. Medicus 20:101
4. Stern MA, Kynoch PMA, Lehmann H, (1968) Beta thalassemia, glucose-6-phosphate dehydrogenase deficiency and hemoglobin D-punjab in Pathans. Lancet i: 1284-1285
5. Ahmed D, Nawaz MN, Tauseef K, Khan MBH, Mashal M, Zafar H. Frequency Regarding Awareness of Thalassemia amongst the Students, Paramedical Staff and Employees of Tertiary Care Hospital. Isra Med J. 2017; 9(3): 161-165
6. Batool I, Ishfaq K, Bajwa RS. Psychosocial Burden among Thalassemia Major Patients: An Exploratory Investigation of South Punjab, Pakistan. Pak Paed J Jul - Sep 2017;41(3):158-62
7. National Health Policy (2009). Ministry of Health Government of Pakistan
8. Safdar S, Mirbahar A, Sheikh MA, Taseer I, Mustafa A, Ali Z, Bashir F, et al. Economic burden of thalassemia on parents of thalassemic children: A multicentre study. Pak J Med Res Jun-Sep 2017;56(3):68-72
9. Ishfaq K, Naeem S, Ahmad T, Zainab S. Psycho-Social And Economic Impact Of Thalassemia Major On Patients Families. Isra Med J Jan - Mar 2016;8(1):24-7.
10. Ikram N, Bashir S, Khan S, Chaudhry R. Role of Pre natal diagnosis in thalassemia prevention. JRMC; 2017;21(2):109-112
11. Miri-Moghaddam E, Motaharitabar E, Erfannia L, Dashipour A, Houshvar M. High school knowledge and attitudes towards thalassemia in Southeast Iran. IJHOSCR 2014: 8(1)
12. Hashemieh M, Naghadeh HT, Namini MT, Neamatzadeh H, Dehshal MH. The Iran Thalassemia Prevention Program: Success or Failure? Iran J Ped Hematol Oncol. 2015; 5(3): 161–166

13. Al-Farsi OA, A-Farsi YM, Gupta I, Ouhtit A, Al-Farsi KS, Al-Adawi S. A study on knowledge, attitude, and practice towards premarital carrier screening among adults attending primary healthcare centers in a region in Oman. BMC Public Health 2014 (14):380
14. Ishaq F, Abid H, Kokab F, Akhtar A, Mahmood S. Awareness among parents of b-thalassemia major patients, regarding prenatal diagnosis and premarital screening. J Coll Physicians Surg Pak Apr 2012;22(4):218-21
15. Arif F, Fayyaz J, Hamid A. Awareness among parents of children with Thalassemia major. J Pak Med Assoc Nov 2008;58(11):621-4