ORIGINAL ARTICLE

Impact of Interactive Educational Session Regarding Prevention of Rheumatic Fever / Rheumatic Heart Disease on Patient's Attendants

Shahbaz Ali Shaikh[*], *Qurban Ali Rahu*[**], *Abrar Shaikh*[***]

ABSTRACT

Objective: To determine the impact of intervention on patients attendant about Rheumatic fever / Rheumatic heart disease (RF/RH) prevention.

Study design: Quasi experimental study

Place & Duration: North ward, NICVD Karachi, from 24-12-2011 to 23-06-2013.

Material & Methods: Cases were collected from all medical wards and OPD at NICVD Karachi comprising of 150 consecutive attendants of patients of either gender suffering from RF/RHD not less than duration of two years, attending OPD or admitted at NICVD Hospital. After taking informed consent, a series of interactive workshops were conducted by researcher in three sessions at Seminar Room of department of Cardiac Rehabilitation and Secondary prevention of NICVD, the data was collected accordingly and results were tabulated.

Results: Median score of pre and post education about rheumatic heart disease / rheumatic fever were 1.0(IQR=7) and 18(IQR=3) respectively. Median score was significantly high after education as compare to pre education in all age groups ($p<0.01$). Effect of intervention was higher in attendants who were matriculate and above and it was lower in below matriculate and uneducated. Impact of intervention was observed above 10% in 120(80%) cases while it was below 10% in 30(20%) cases. Impact of intervention was high (86.3%) in younger age. Positive impact of intervention was slightly high in female than male that is 81.5% and 76.2% respectively. Similarly positive impact of intervention was 81.6% in matric and above educated attendants while it was 67.3% effective in below matriculate and uneducated. Irrespective of duration of disease every attendant of patient got benefited, the impact of education was 75% to 92%.

Conclusion: Significant impact of intervention on patient's attendant about Rheumatic fever/Rheumatic heart disease prevention was observed. Impact of intervention was high in younger age than older age groups. Positive impact of intervention was slightly high in female than male.

Key Words: Rheumatic fever, Rheumatic Heart Disease, Prevention, Patient's attendants knowledge

INTRODUCTION

Rheumatic fever is an inflammatory syndrome mediated by humoral and cellular autoimmune response that occurs as a delayed sequel of group A beta hemolytic streptococcal (GAS) throat infection[1]. GAS pharyngitis is primarily a disease of children 5 to 15 years of age, and in temperate climates, it usually occurs in the winter and early spring[2]. RHD remains a major public health problem in developing countries with prevalence rate varying from 0.8 to 12.6 per 1000 in different countries[3]. Prevention of the severe consequences of RF/RHD is achievable and cost-effective. Indeed, of all serious chronic conditions, rheumatic heart disease is one of the most readily preventable[4]. Its public health importance is not only a direct result of its high occurrence rates (incidence, prevalence and mortality), but also the population affected (children and young adults). Its economic consequences, both in

* *Senior Registrar, Cardiology Department PUMHS, Nawabshah.*

** *Associate Professor, Cardiology Department PUMHS, Nawabshah.*

*** *Associate Professor, Deptt: of Community Medicine PUMHS, Nawabshah.*

Correspondence to:

Dr. Shahbaz Ali Shaikh
Senior Registrar,
Cardiology Department
Peoples University of Medical & Health Science,
Nawabshah.

health care related costs and in indirect costs to society (often resulting in premature death or disability), are very significant[5]. Structured public education programs according to the recommended strategies of prevention of RF/RHD at mass level through media is the cheapest, safest, and most effective tool to face this big challenge.

MATERIAL & METHODS:

The current study was conducted in the North ward, NICVD Karachi, from 24-12-2011 to 23-06-2013.The cases were collected from all medical wards and OPD at NICVD Karachi,

Sample Size:

A sample size of 150 achieves 80% power to detect a difference (P1-P0) of 0.10 using a two sided binomial test. The target significance level is 0.05. These results assume that the population proportion under null hypothesis is 0.20[12].

Sample Technique:

Non probability Purposive sample technique.

Inclusion Criteria:

Adult attendants of patients of either gender with RF/RHD (diagnosed on the basis of Echo), attending OPD or admitted at NICVD Hospital.

Exclusion Criteria:

Persons already aware of medical profession like doctors, nurses, paramedical staff and medical representatives.

Data collection Procedure:

Attendants were selected according to inclusion criteria. Informed consent was taken from patients and their attendants Study was approved from ethical committee of hospital. The base line evaluation based on 20 questions, were evaluated prior to intervention. After an interactive and practical demonstration conducted by researcher the patient's attendants were reevaluated by the same questions after 30 minutes. The series of interactive workshops were conducted by researcher in three sessions at Seminar Room of department of Cardiac Rehabilitation and Secondary prevention of NICVD.

Session 1:

Pre test evaluation by using a written questionnaire at the time of recruitment.

Session 2:

Interactive discussion and practical demonstration, stressing on different aspects of RF/RHD prevention.

Session 3:

Post test evaluation regarding knowledge of about RF/RHD prevention by using written questionnaire. Each correct response of a question will be given one mark and the impact of intervention will be labeled as +ve if there is change in pre to post by 10%.

Operational Definitions:

*** **Score of response:**

Based on 20 questions. Each correct response of a question was given one mark.

*** **Base Line Score:**

The number of correct answers before educational session.

*** **Post education score:**

The number of correct answers after educational session.

*** **Attendant:**

Means Parent / Guardian or first degree adult relative. The impact of intervention will be labeled as +ve if there is change in pre to post test score by 10%

DATA ANALYSIS PROCEDURE:

Data was entered and analyzed using the SPSS Version 10.0 for windows. Mean, standard deviation, 95% confidence interval, median and IQR were computed for age, duration of disease and intervention score. Frequency and percentage were computed for categorical variables like age groups, gender, duration of disease, education of attendants.

Wilcoxon Signed paired ranks test was applied to compare pre and post intervention score. $P<0.05$ was considered level of significant. Stratification of age of the attendants, gender, education, duration of disease of patients was done to observe an effect on outcome variables.

RESULTS:

A total of 150 attendants of patients suffering from rheumatic heart disease / rheumatic fever were included in this study. Most (56%) of the attendants were between 21 to 40 years of age (figure.1). The average age of the patients and their attendants were 28.91±13.41 years (95%CI: 26.74 to 31.07) and 38.19 ± 11.84 years (95%CI: 36.28 to 40.10) respectively. Similarly average duration of disease was 8.94±6.99 years (95%CI: 7.77 to 10.10) (Table.1).

Out of 150 attendants, 96(64%) were male and 54(36%) were female (figure.2). Duration of disease of 68(45%) patients was 2 to 5 years, 44(29%) patients were tolerated disease for 6 to 10 years, 25(17%) were having 11 to 20 years and duration of disease of 13(9%) patients was above 20 years. Education status of the attendants is presented in table.2. Most of the attendant's educations were matric and intermediate while there were 28% attendants who were below matric as well as some are uneducated and graduate.

Median score of pre and post education about rheumatic heart disease / rheumatic fever were 1.0(IQR=7) and 18(IQR=3) respectively this imply that knowledge about RF/RHD of attendants was significantly improved after education (p=0.0005; Wilcox on Signed Ranks Test). Box and wicker plots are showing median difference in figure.3.

Median score was significantly high after education as compare to pre education in all age groups (p<0.01) as presented in table.3. Similarly median score was observed high after education than before education in male and female. Effect of intervention was higher in attendants who were matriculate and above and it was lower in below matriculate & uneducated. Irrespective of duration of disease every attendant of patient got benefited. Out of 150 attendants, impact of inter-vention was observed (above 10% pre and post score difference) in 120(80%) cases while impact of intervention was below 10% in 30(20%) cases as shown in table-4. Median score was significantly high in both groups but above 10% difference in pre and post score was observed in 80% cases.

Impact of intervention was high in younger age (<40 years) that is 86.3% than older age groups (>40 years) 68.9%. Positive impact of intervention was slightly high in female than male that is 81.5% and 76.2% respectively. Similarly positive impact of intervention was 81.6% in matric & above educated attendants while it was 67.3% effective in below matriculate and un-educated. Irrespective of duration of disease every attendant of patient got benefitted the impact of education was 75% to 92%.

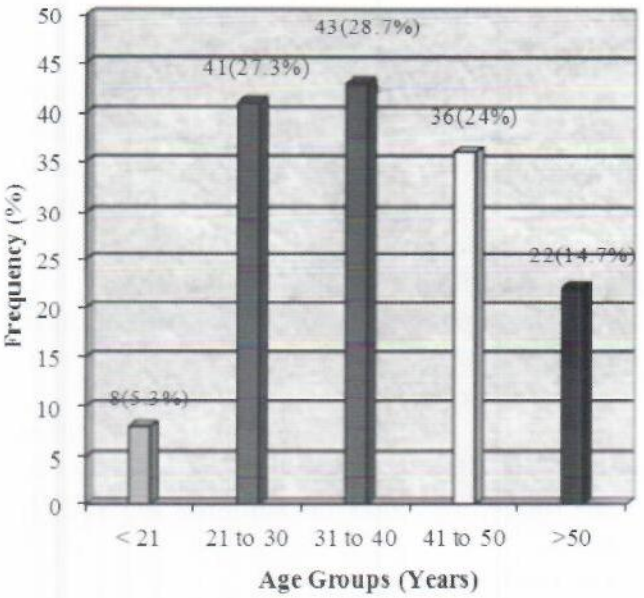

Fig-1. Age Distribution of The Patient's Attendant (n=150)

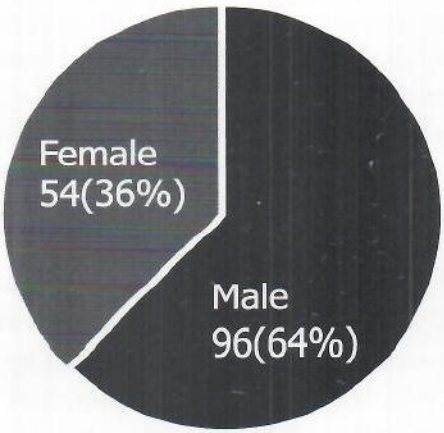

Fig-2. Gender Distribution of Patients Attendant (n=150)

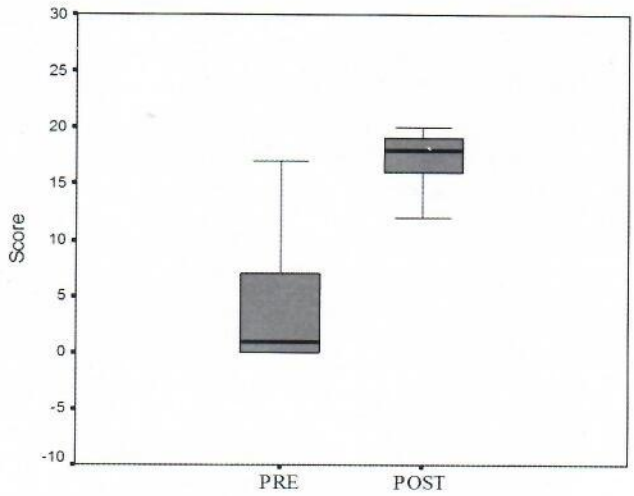

Fig-3. Median Score of Pre & Post Intervention Effect of Patient's Attendant

PRE	POST	P-Value
Mean ±SD	3.84±4.66	17.31±2.74
Median (IQR)	1(7)	18(3) 0.0005*
Minimum Score	0	5
Maximum Score	17	20

Wilcoxon Signed Ranks Test was applied instead of pair test because of violation of normality.
(* significant)

TABLE.1 Descriptive Statistics of Characteristics of Patients

Variables	Mean ± SD	95%CI	Median (IQR)	Max – Min
Age of the patients (Years)	28.91±13.41	26.74 to 31.07	25(16)	78 – 9
Age of the attendant (Years)	38.19±11.84	36.28 to 40.10	40(17)	70 – 15
Duration of disease	8.94±6.99	7.77 to 10.10	7(9)	35 – 2

TABLE.2 Education Status of The Patients' Attendants. (n=150)

Education Status	Frequency	Percentage
Illiterate	10	6.7%
Below Matric	42	28%
Matric	40	26.7%
Intermediate	48	32%
Graduate	10	6.7%

TABLE.3 Comparison of pre & post median score with Respect to age of the attendants.

Age of Attendant	n	Attendant Response Score		P-Value
		Pre Education Median (IQR)	Post Education Median (IQR)	
< 21 Years	8	1(1)	18(3.753)	0.012*
21 to 30 Years	41	2(8.5)	18(3)	0.005*
31 to 40 Years	43	3(7)	17(3)	0.005*
41 to 50 Years	36	1.5(5.5)	17.5(4)	0.005*
>50 Years	22	1(9)	17.5(3)	0.005*

Wilcoxon Signed Ranks Test was applied. (* significant)

TABLE.4 Comparison of Pre and Post Interventional Education About RF/RHD Prevention

Impact of intervention	N	Statistics	Attendant Response Score		P-Value
			Pre Education	Post Education	
Pre and post score difference ≤ 10 %	30(20%)	Mean± SD Median (IQR)	10.53±4.7 11.5(6.25)	16.03±4.21 17(4.25)	0.0005
(Positive Impact) Pre and post score difference > 10%	120(80%)	Mean± SD Median (IQR)	2.17 ± 2.78 1(4)	17.63±2.14 18(2.75)	0.0005

Wilcoxon Signed Ranks Test was applied. (* significant)

Discussion:

Rheumatic Fever and Rheumatic heart disease is crippling disease of our youngsters and is major health care burden affecting different strata of the Pakistani population[6]. This under developed part of the world has unfortunately a high prevalence of the disease[7]. Despite the availability of its preventive measures like antibiotic treatment against GAS Throat infection and secondary prophylaxis against RF/RHD[8], this is a neglected health care issue in Pakistan. Recent local study highlights high disease burden and ignorance among the patients and their attendants about the disease prevention is also high, this is because of lack of basic knowledge of the disease and its prevention[9]. Prevention is safest and most cost effective strategy. The incidence and prevalence of RF/RHD is negligible in developed countries[10]. Importance to primary prevention plays pivotal role in management of RHD/RF worlwide[11-16]. Hence there is no foreign data available regarding education of patient's attendants with regards to prevention of the disease. Intervention (Educational session on patient's Attendants) performed regarding prevention of this disease; can this be beneficial in improving knowledge about this disease and implementation of the recommended strategies of prevention? This can consequently translate into better understanding and hence care of these patients.

The results of our study highlight the Importance of educational session on patients' attendants with regards to improved Rheumatic Heart Disease knowledge and prevention of this condition. This aspect has not been previously studied both at national or international levels and therefore we could not compare the finding of our work with other published data.

It is suggested that in view of this widely prevalent disease, both clinicians and health care providers should focus on adequate counseling of patient's attendants regarding understanding of basic knowledge of Rheumatic Fever and Rheumatic Heart Disease & also educate them in terms of recommended preventive strategies. On the basis of this study it is suggested that the governmental and non governmental organizations and health care groups also formulate plans in this regards as this would certainly enable reduction in prevalence and perhaps education of this debilitating condition with a multi faceted approach in our endemic part of the world.

We can not fight the challenges, in hospitals and theaters. Structured public education programs according to the recommended strategies of prevention of RF/RHD at mass level through media is the cheapest, safest, and most effective tool to face this big challenge.

CONCLUSION:

Significant impact of intervention on patient's attendant about Rheumatic fever / Rheumatic heart disease prevention was observed. Impact of intervention was high in younger age than older age groups. Positive impact of intervention was slightly high in female than male.

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