International Journal of

Pharmacy Practice & Drug Research

www.ijppdr.com

Case Report

THE CLINICAL PHARMACIST'S ROLE IN ENHANCEMENT OF MEDICATION ADHERENCE AND QUALITY OF LIFE IN RESPIRATORY DISEASES - A PROSPECTIVE INTERVENTIONAL STUDY

Sheena Marin Thomas*[1], Shereen Thomas[2], Sonia Rani R[2], Rahul Nampoothiri[2], Albin joseph[2]

[1]Assistant Professor, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.
[2]Pharm D Internship Students, The Oxford College of Pharmacy, Hongasandra, Bangalore -560068, India.

ABSTRACT

The aim of the study was to assess the role of clinical pharmacist in the enhancement of medication adherence and QOL in patients with respiratory diseases. The study being a prospective interventional study was carried out for 6 months and the study population were divided randomly into control and intervention group using randomized block design. The QOL of the patients was assessed by using SGRQ and then the medication adherence was assessed using modified medication adherence scale before and after patient counseling and patient counseling was provided only to the intervention group. The patient counseling was provided using brochures and patient information leaflet (PIL). Among the 146 patients who completed the study, pre counseling medication adherence scores were similar for both the groups before counselling and after patient counseling there was statistically significant increase in medication adherence score and QOL in the intervention group than that of control group. The evaluation of the SGRQ score using Chi –square was done and the p value obtained was 0.992217, where the level of significance was set at 5% (p value<0.005). Thus this value indicates that the difference between the test and control is not statistically significant as the scoring was done without providing any counseling. Whereas for medication adherence the p value was found to be as 0.00139 (p value < 0.005); which indicates that there is a high level of statistical significance between the control, pre-counselling, and post-counselling values of medication adherence after providing patient counselling**.** Thus the study proved that the clinical pharmacist has a vital role in the enhancement of medication adherence and QOL in patients suffering from respiratory diseases.

INTRODUCTION

Corresponding Author

Sheena Marin Thomas
Assistant Professor, The Oxford College of Pharmacy,
Hongasandra, Bangalore-560068, India.
Email : sheenamarin@gmail.com

Respiratory diseases are an important public health challenge which affects most of the population in India. About 26.3 million cases of acute respiratory infections was found to be reported in India in 2011, with an incidence rate of about 2173 cases per lakh population. And an average adult has about 2-4 episodes per year. It is estimated that at least 300 million episodes of ARI occur in India every year, out of these about 30 to 60 million are moderate to severe ARI [1]. The World Health Organization has introduced the term "adherence" for use in chronic disorders as "the extent to which a person's behaviour taking medication, following diet, and/or

executing lifestyle modifications corresponds with agreed recommendations from a health care provider [2]. Quality of life is an important outcome measure for the evaluation of therapy or for the evaluation of pharmacist educational support. It is also known to be a subjective evaluation which provides a frame work to determine how and how much the disease is influencing the normal life of patients [3]. As patients with respiratory diseases may fail to follow their medication due to longer duration of therapy, side effects, complicated drug regimens, lack of understanding about the management and risks, problem of economic status and individual differences among medications, Socio-economic factors, life style, nutrition, lack of patient motivation, lack of patient education programs and adverse reactions to drugs all could contribute significantly to non-compliance [4]. Thus it is important to use a tool which can be used in general to understand the patients understanding of the disease and underlying conditions for improving medication adherence and the tool St. Georges Respiratory Questionnaire is one of the widely used PRO tool to assess disease impact on patients with obstructive disease, chronic or acute in nature, and it has also been translated and adopted in many countries. This questionnaire can provide a psychosocial impact profile of these patients that cannot be identified by other lung functions tests [5]. This helps us to mainly assess the symptoms, functional measure and wellbeing of the patient based on the patient's knowledge on his or her conditions thus helps us to better understand the patient's requirement in terms of pharmacist provided patient counselling .It involves interaction between a pharmacist and a patient and/or a care giver whereas the pharmacist assist the patients by Providing information on medication either orally or in written format to the patients or their care taker or providing proper directions of use, advice on side effects, storage, diet and life style modifications [6].

Pharmacists plays a major role in educating and counselling patients by motivating them to follow their treatment regimens and monitoring plans as per the directions of the physician. Illiteracy still remains a pervasive problem that compromises quality health care, limits understanding of health information, and potentially leads to poor health outcomes thus the use of brochures improvise patients understanding about their medications, particularly when pictures are used in combination with written or oral instructions [7]. Patient counseling brochures are produced by pharmacists for the benefit of the patients and are universally accepted as the most important tool to educate the patient.

MATERIALS AND METHODOLOGY

The approval for the conduct of the research was obtained from institutional ethics committee, The Oxford Medical College and Research Centre, Bangalore.

MATERIALS

This study was a prospective interventional study approved (IEC/TOMCHRC/046/15-16) by the Institutional Ethics Committee of The Oxford Medical College Hospital and Research Centre, Bangalore. A total of 146 patients who were newly diagnosed or known cases of respiratory disease in the departments of general medicine and pulmonology during 6 months in the year 2016-2017 were selected. Patient consent forms were collected along with all other relevant and necessary data was collected from the medical records of the patients using a standard case report form. Patients QOL was assessed with a pre designed set of questionnaire St.George respiratory Questionnaire after which the patients were provided with patient counseling using brochures and PILs in the language the patient would understand, also oral counselling was given only to the test group; whereas the medication adherence was measured using modified medication adherence scale in both the groups. All the Participants were chosen as per the inclusion criteria and a written consent was obtained before the administration of the questionnaire from individual patients. Confidentiality of the participants was maintained and the questions were explained in their local languages. Patients who were visually challenged, pediatric patients and those who were not willing to participate were excluded from the study. The mean and standard deviation of the study population were calculated. All the cases were categorized based on the gender, and those who obtained counseling and their ratio were calculated. Data analysis was done by using chi-square (SGRQ) and ANOVA (medication adherence) on MS-Excel where, 'P value' less than 0.05 were considered as statistically significant.

RESULTS

One hundred and forty-six patients were enrolled in the study. Then total patients were randomly divided using randomized block design into two groups, test and control. The following are the demographics details of the patients.

Gender Wise Distribution

Gender wise distributions of patients are given in table 1. It shows that the majority of the patients were malesi.e 86 (59%)

Age Distribution between Different Diseases

Age distribution between different diseases is mentioned in table 2 and figure 2. Out of 146 patients who visited the hospital was seen that there were cases of COPD with a mean age of 57.34±11.675; followed by pneumonia with a mean age group of 55.311±12.65, Bronchial asthma 52.594± 16.617, LRTI with a mean age of 52.436±16.99, Bronchitis with a mean age of

52.366±13.91, PTB with a mean age of 47.64±17.09, URTI with a mean age of 46.47±16.99.

Smoking Status of Patients

The smoking status of the patients in the test and control were found to as given in table 3 and figure 3 and it shows that the number of smokers were more in number ie 77 in total with 43 and 34 in control and test respectively.

SGRQ Score

The SGRQ score between the test and control groups was compared using chi- square where the symptoms, activity, impact and total score was compared. The actual and expected values which are given in the table 4 and table 4.1 and fig 4 respectively

In the evaluation of the SGRQ score using Chi – square the p value obtained was 0.992217, where the level of significance was set at 5% (p value<0.005). Thus the value indicates that the difference between the test and control is not statistically significant

Medication Adherence

The medication adherence score between the control, pre and post treatment variables were compared using ANOVA. This is indicated in table 5 and table 5.1 and it indicates that the F value obtained is 714.5043, which helped in finding the p value. The p value was found to be as 0.00139 (p value < 0.005) which indicates that there is a high level of statistical significance between the control, pre-counselling, post counselling values of medication adherence.

DISCUSSION

The control of respiratory diseases mostly requires a complex treatment plan as the symptoms wax and wane. In this setting the patients adherence may indeed become easily frail and its maintenance requires extreme alertness. In real life situations, adherence affect many aspects of management of chronic conditions such as aggravating factors, appointment keeping, monitoring, prevention, or applying an emergency plan as per requirement. This study was a prospective interventional study which was done to understand the pharmacist's role improving medication adherence by evaluating first the existing knowledge of the patients. The comparison of medication adherence between the test and control group was similar to the study conducted by [2] who conducted a study on the effect of patient counselling at discharge and their follow up by the pharmacist on the treatment satisfaction and medication adherence.

The number of males enrolled in this study based on the inclusion criteria in test were54.79% while the females were 41.09% and in control percentage of males was 54.79% while that of females 41.09%. In a similar study conducted by [2] the males in intervention group were56.41 % and females were 60.78% while that of control the males were found to be 43.58% and that of females were found 39.47%.

In this study the mean age of male patients belonging to control were 51.7years and patients in test group had a mean age of 53.24 years. In a similar study conducted [8]

In our study the control group had no ex-smokers whereas 43 smokers and 31 non smokers, whereas in the test group 6 ex-smokers, 34 smokers and 32 non smokers which is similar to the study conducted by [9] and her team where in counseling group, 13 patients were smokers and 17 patients were non-smokers. In Control group, 15 patients were smokers and 15 patients were non-smokers.

In our study we found that the SGRQ score in test for symptoms, activity, impact, and total were found to be 62.7, 66.02, 75.68, and 68.81 respectively, were as in case of control the scores for symptoms, activity, impact, and total score were found as 57.59, 61.57, 73.56, and 67.42 respectively. In a similar study done by [8] the SGRQ score in control for symptoms, activity, impact and total were 53.89, 49.93,54.24, 49.93 and 52.82 respectively while that of the test the SGRQ score for the symptoms, activity, impact and total were found to be 56.53, 55.25, 54.24 and 53.25 respectively. The evaluation of the SGRQ score using Chi –square was done were the p value obtained was 0.992217, where the level of significance was set at 5% (p value<0.005). Thus the value indicates that the difference between the test and control is not statistically significant.

In our study we evaluated the medication adherence using ANOVA were, the total sum of square 8755.4, sum of squares within a group 1149.64, sum of squares between group 7605.76, the degree of freedom was found as 216, and 2 respectively which helped us to find the F value as 714.5 and p value as 0.001398. The p value indicates that there is a high level of statistical significance between the control, pre-counselling, post counselling values of medication adherence.

Table 1. Gender Distribution of Patients

Gender Distribution	No. Of Patients (n=146)	Percentage (%)
Male	86	58.904%
Female	60	41.09%

Table 2. Disease Wise Age Distribution of Patients

Diseases	Mean± SD
Bronchitis	52.366±13.9148
Bronchial asthma	52.594±16.617
COPD	57.34±11.675
Pneumonia	55.311±12.65
URTI	46.47±16.96
LRTI	52.43±16.99
PTB	47.64±17.09

Table 3. Smoking Status

Smoking status	Control	Test
Ex smoker	0	6
Smoker	43	34
Non smoker	31	32

Table 4. Shows the actual value of symptoms, activity, impact, total between test and control

Actual values	Test	Control	Sum total
Symptoms	62.7	57.59	120.29
Activity	66.02	61.57	127.59
Impact	75.68	73.56	149.24
Total	68.81	67.42	136.23
Sum total	273.21	260.14	533.35

Table 4.1. Shows the expected value of symptoms, activity, impact, and total between test and control.

Expected value	Test	Control
Symptoms	61.61888235	58.67111765
Activity	65.35832736	62.23167264
Impact	76.44859923	72.79140077
Total	69.78419106	66.44580894

Table 5. Shows the value of Sum of squares within a group

	control	x-mean	$(x-mean)^2$	Pre	x-mean	$(x-mean)^2$	Post	x-mean	$(x-mean)^2$
sum	1070	0	734.6272	930	0	353.508	1904	0	61.50
avg	14.65	0	10.0633	12.739	0	4.8425	26.0821	0	0.8425
SSW	1149.64								

Table 5.1. Anova

Components	Values (A)	Degree of Freedom (B)	A/B
Total Sum of Square	**8755.406393**		
Sum of Squares within Group	**1149.64**	**216**	**5.322407407**
Sum of Squares between Group	**7605.766393**	**2**	**3802.883196**
		F	**714.5043408**
		P	**0.001398584**

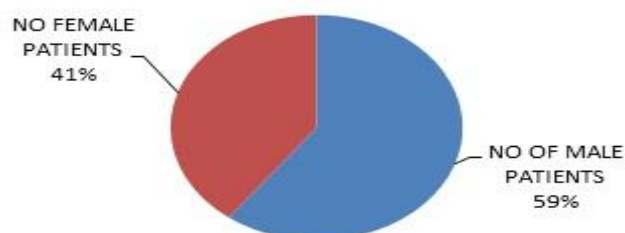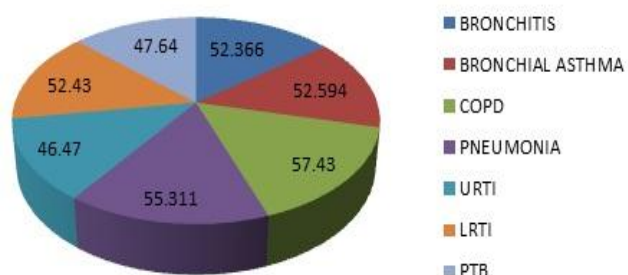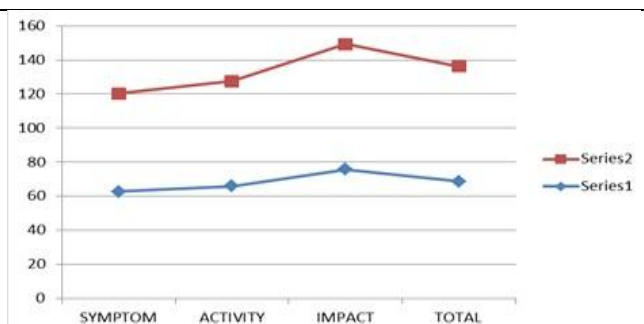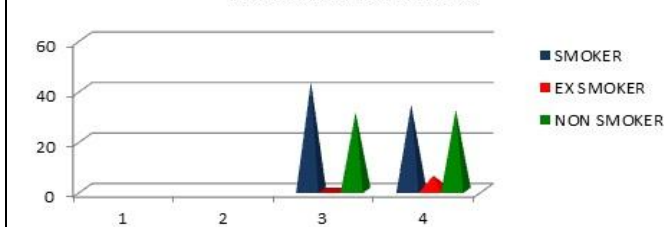**Fig 1. Details of Gender Distribution of Patients**

Fig 2. Details of Disease Wise Age Distribution of Patients

Fig 3. Shows the smoking status of the patients in our study among the test and control groups respectively.

CONCLUSION

Pharmacist mediated patient counseling is the keystone for a successful medication adherence. Among the various methods tried so far, each have brought with it, their own advantages and disadvantages. From the different parameters compared and outlined in our study, following conclusions could be drawn that for evaluating a patients knowledge using SGRQ is the best method which can be used for all the respiratory diseases in common which tends to offer better understanding of patients knowledge on symptoms, activity, and impact of disease on his or her life. Nonetheless from our study, it was established that the pharmacist mediated patient counselling has a profound impact on a patient's medication adherence. Therefore, this study proved that enhancement of medication adherence is necessary in the overall improvement in the quality of life of the patients.

REFERENCES

1. Krishnan A, Amarchand R, Gupta V, Lafond KE, Suliankatchi RA, Saha S, Rai S, Misra P, Purakayastha DR, Wahi A and Sreenivas V. Epidemiology of acute respiratory infections in children-preliminary results of a cohort in a rural north Indian community. *BMC infectious diseases*, 15(1), 2015, 462
2. Sanii Y, Torkamandi H, Gholami K, Hadavand N and Javadi M. Role of pharmacist counseling in pharmacotherapy quality improvement. *Journal of research in pharmacy practice*, 5(2), 2016, 132.
3. Shanmugam S, Varughese J, Nair MAS, Balasubramanian R, Velu S, Bhojan C, Devarajan V and Sabzghabaee AM. Pharmaceutical care for asthma patients: A Developing Country's Experience. *Journal of research in pharmacy practice,* 1(2), 2012, 66.
4. Bhardwaj, A., Kumar, R., Dabas, V. and Alam, N., 2012. Assessment and enhancing adherence to treatment regimen in tuberculosis out patients. *Int J Phar m Pharm Sci*, *4*, pp.51.
5. Lo, C., Liang, W.M., Hang, L.W., Wu, T.C., Chang, Y.J. and Chang, C.H., 2015. A psychometric assessment of the St. George's respiratory questionnaire in patients with COPD using rasch model analysis. *Health and quality of life outcomes,* 13(1), 2012, 131.
6. Jayasutha J, Roshini K, Saipavan. Attitude Assessment of Impact of Patient Counseling on Knowledge and Practices in Asthma Patients. *Global Journal of Pharmacology*. 8(4), 2010, 486-489
7. Pawar S, Lokhande KD, Padma S and Diwan A. Effect of pharmacist mediated patient counseling in hypertensive patients in terms of knowledge, compliance and lifestyle modification. *International Journal of Pharmacy and Pharmaceutical Sciences,* 6(4), 2014, 277-281.
8. Shareef J, Sajitha M and Shastry C. Impact of pharmacist provided patient counseling on quality of life in patients with asthma in a tertiary care teaching hospital. *International Journal of Pharma Res Rev,* 3(2), 2014, 1-10.
9. Ramli A, Ahmad NS and Paraidathathu, T. Medication adherence among hypertensive patients of primary health clinics in Malaysia. *Patient preference and adherence*, 6, 2012, 613.