

Compliance and Adherence to Short Course of Antibiotics in Children and Factors Affecting the Compliance

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ABSTRACT

Background: Compliance means how strictly a patient follows the physician advice. It plays important role in the treatment outcome. Different factors relating to patient or parent or physician directly or indirectly affects the compliance in short duration treatment

Aim: To evaluate factors affecting the compliance in short duration treatment.

Methods: This prospective observational Study was carried out in Abbas Institute of Medical Sciences (AIMS) Muzaffarabad over a period of two and half year. Two thousands cases were selected who came for follow up. Patients who completed 90% or more than 90% treatment were considered as having good compliance and those with less than 90% treatment were labeled as having poor compliance.

Results: Results were analyzed using SPSS version 16. Among the 2000 children, 52.2% were found having good compliance while 47.8% with poor compliance. The education status of the caregiver was also assessed. Among the total uneducated population (445) 82% had good compliance and 18% poor compliance (p-value 0.000), among the parents having metric level education (n=457), 35% had good compliance and 65% had poor compliance (p=0.000), among the parents having intermediate level education (n=746) 40% had good compliance and 60% had poor compliance among the parents having graduate and post graduate level education (n=357) 61% had good compliance and 39% had poor compliance.

Conclusion: In our study we concluded that uneducated people remain more compliant to the treatment with the fear of bad consequence and the people with under graduate level education interfere more with doctors' advice due to many reasons. This observation is made during the study in a limited population of Muzaffarabad division patients only. The scope of this study needs to stretch across at province or country level to validate this factor.

Keywords: Compliance, Pediatrics, Factors

INTRODUCTION

Compliance and adherence are synonymously used in medical field but the term adherence is preferred over compliance which refers to the patient's extent of following a health care professional's advice for managing an illness or disease¹.

Good compliance is the fundamental and key factor in the treatment outcome of an illness. Poor adherence to medical treatment is wide spread and well recognized, as are its consequences of poor health outcomes and increased health care cost². Compliance and adherence of the medicine plays crucial role in the treatment outcome of the patient with any disease. Indiscriminate use and poor compliance of an antibiotic plays important role in the development of antimicrobial resistances which is a major public health concern^{3, 10}. Factors affecting the

compliance in pediatric population are either related to patients or parents or treating physician. Both patient and healthcare provider affects the compliance and physician-patient relationship is the most important factor for improving compliance⁴.

The matter of compliance become more important and unique in case of pediatric patients because the patient himself or herself is not responsible for taking medicine, rather parents or any other caregiver is responsible. Moreover it further depends upon whether caregiver is mother, father, grandmother or any other relative because sense of responsibility, sympathy or empathy changes with each.

Many studies have been conducted so far on the compliance and adherence in children for many chronic diseases⁴. The matter of compliance is changed with long term treatment for a chronic illness and short term treatment for a disease. So far no study is available on compliance in children on short

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duration antibiotic therapy in Pakistan. So we conducted this study to evaluate different factors affecting the compliance in short course of antibiotic therapy

MATERIALS AND METHODS

It was an observational prospective study carried out in Abbas institute of medical sciences (AIMS) Muzaffarabad. Cases were selected both from OPD and from ward after they were discharged on home treatment; two thousands cases were selected over an approximately two and half year period. A proforma was prepared and filled for the registration of each patient (Anx). Compliance was studied only on the therapy of the antibiotic for period ranging from five to fourteen days for different diseases. Only those patients were registered who came back for follow up. The patients who completed 90% or more than 90% of prescribed treatment were taken as having good compliance and those having less than 90% were considered as having poor compliance.

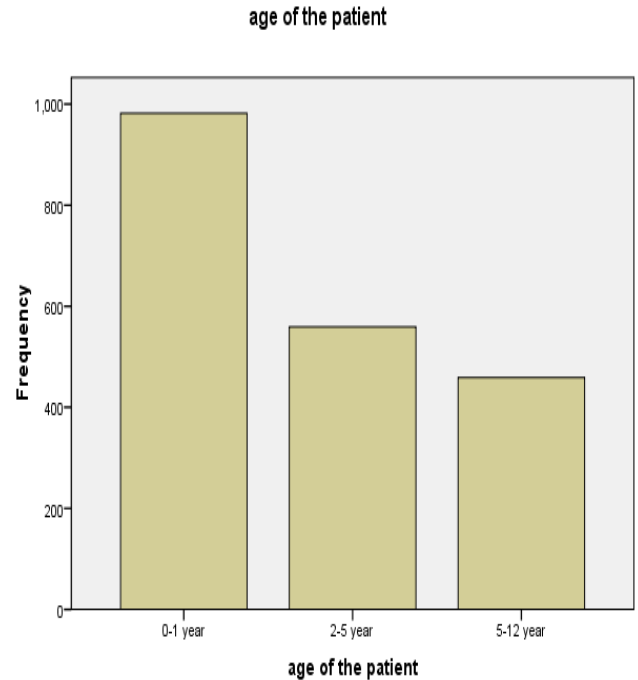
Only the patients receiving antibiotics for any disease were included in the study. Patient prescribed antibiotics for five days to fourteen days were included in the study. Those patients who required treatment for more than two weeks were excluded from the study. Patients who changed the treating physician for any reason were also excluded from the study.

RESULTS

Among the 2000 children, 52.2% were found having good compliance while 47.8% with poor compliance. Among the patients having poor compliance 293 (27%) stopped the treatment feeling that the child is well after 3 days, 142 (13%) stopped the treatment because the child was not taking the medicine, 93 (8.6%) stopped the treatment considering it a high antibiotic assessing by its cost, 148 (13.8%) stopped the treatment because the medicine was harmful to kidney or liver, 202 (18.8%) stopped the treatment because the child was vomiting the medicine and it was difficult to give medicine, 41 (3.8%) stopped the treatment because medicine was finished at fourth day and not purchased the new one and 71 (6.6%) stopped the treatment because there was someone else who was giving the medicine and not informed the parents.

Of the total patients 49.1% (982) were from birth to one year, 28% (559) were from 2 to 5 year and 23% (459) were from 5 to 12 year. Forty nine percent of the population was from urban area and 51.4% was from the rural area. Thirty six percent of the population was male and 65% female. The

education status of the caregiver was also assessed. Of the total population, 22% were uneducated, 22.8% were matriculate, 37.3% were intermediate, 13.6% were graduate and 4.2% were having post graduate qualification



Compliance way	Frequency	%aege
Child was well after 3 days	293	14.6
Child was not taking medicine	142	7.1
It was a high (anti-biotic) as is presume its cost and I stopped the medicine	93	4.6
Medicines are generally harmful for kidney	148	7.4
It was very difficult to give medicine as child vomiting every time I tried to give medicine	202	10.1
Medicine as finished at fourth day and i have not purchased new one	41	2.0
There was someone else who was giving medicine	71	3.6
Other	80	4.0
Total	1070	53.5

Education	Frequency	Percent
Uneducated	440	22.0
Matric	457	22.8
Intermediate	746	37.3
Graduate	273	13.6
Post graduate	84	4.2
Total	2000	100.0

In majority of the cases (89.8%) the caregiver was mother, in 8.6% it was father and in 1.6% cases it was some other relative.

Gender	Frequency	Percent
Male	123	6.2
Female	1806	89.6
Others	71	4.2
Total	1999	100.0

Among the patients who have good compliance, 35% (n=365) of the parents were uneducated, 15.5% were metric, 29% were having intermediate level education, 18% graduate and 2.6% were having post graduate level education. Parents of the patients with poor compliance, 8% (n=80) were uneducated, 31% were metric, 46% were having intermediate level, 8.6% graduate and 5.8% were having post graduate level education. Among the total uneducated population (445), 82% had good compliance and 18% poor compliance (p value 000), among the parents having metric level education (n=457), 35% had good compliance and 65% had poor compliance (p-value.000), among the parents having intermediate level education (n=746) 40% had good compliance and 60% had poor compliance (p-value .000) among the parents having graduate and post graduate level education (n= 357) 61% had good compliance and 39% had poor compliance (p-value .000).

DISCUSSION

The compliance or adherence of the medicine is different in children compared to the adult's population because the care provider is not the patient himself. The patient is unaware of the consequences of the poor compliance. Compliance directly depends on how much the care provider is responsible person. So the compliance directly reflects the behavior and responsibility of the parents dealing with young patients.

In this study, 52.2% of the patients have good compliance which is comparable to many others studies in adults (44%)⁴ but most of those studies are conducted in adults in chronic diseases, where medicine are prescribed for quite long period which is not comparable to our study. Compliance results in our study are quite discouraging compared to the study done by Maylin and Nivin (77%). This wide range variability in the results of different studies shows implication of different factors on compliance. These factors include demographic, medical, medication, behavioral and economic factors⁵. These factors can also be grouped as intentional and unintentional⁶ which directly or indirectly reflects the sense of responsibility and behavior of the patient or caregiver in case of children. In our study we have focused on the factors reflecting the behavior of the parents towards compliance. Of these factors, one of

the most important factors is the education level of the caregiver. While considering the compliance of a medicine in pediatric population, age of the patient also becomes an important factor. In our study we have analyzed these two factors.

In our study most of the population (77%) was below the age of five year, the age group for which the parents are responsible for compliance. However, in this study only 33% of population belongs to age more than five year, the age group more associated with non-adherence^{7,8}. This indicates the contribution of other major factors responsible for poor compliance. The reason for non-adherence in this age group probably is that the young children claim that they are taking their medicine themselves.

In our study, the patients who have good compliance 35% were uneducated, 26% were having postgraduate qualification and rest of the population was having different level of education. This reflects the parental interest and responsibility, at their different education level. Surprisingly a good number of uneducated parents followed the prescription completely. On the other hand, among the parents who have poor compliance, 7.8% were uneducated. So this study highlights the fact that uneducated person more strongly sticks to the treatment due to the fear of the treatment failure. However, when the family is uneducated, the risk of involvement of other factors affecting the compliance is increased. The other aspect of this study evidenced by the results is, the parents who have matric and intermediate level education they interfere more with the treatment of their children as compared to the graduate and post graduate level parents. Multiple reasons and logics are given by the parents as evident by the results of the study. Among the patients who have not completed the treatment, almost 54% stopped the treatment earlier due to the side effects they read from the drug Copan or they thought the drug is too strong or no sooner the symptoms were relieved they stopped the treatment considering the above two factors. These parents read the drug information leaflet packed with medicine but it is difficult to understand the extent and degree of side effects by a person having no medical educational background. Similarly, these parents also perceive the costly medicine as more harmful for the patients when we further see the results, 44% of the population with good compliance belongs to the metric and intermediate level education while with poor compliance 77.5% population belongs to this education level group. This highlights the fact that metric and intermediate level education parents interfere more with physician's prescriptions. However, study results shows the parents who have graduate and post graduate level education remain

more adherent to physician's advice and shows higher sense of responsibility.

Thirty percent of the parents stopped the treatment on third or fourth day of treatment as the symptoms of the disease were relieved. Majority of them assumed that if patient's symptoms are cured, treatment is complete. A small percentage (4%) of the parents remained poorly compliant as they have not purchased the drug when it finished earlier or was spoiled. The reason was partial recovery of the patients and economic constraints.

Besides the other factors, physician can improve the compliance by better and effective communication, simplifying the regimen, evaluating the adherence, modifying the parents believe and explaining the duration and outcome clearly⁹. An important factor which directly affects the compliance is better and effective communication and explanation on the part of physician regarding the duration and outcome of treatment and at the same time explaining the consequences of discontinuation of the treatment. Here the roll of the physician becomes very important in improving the compliance. During the evaluation if poor compliance is identify than roll of physician is increased for further intervention to improve the compliance¹⁰. Compliance can be improved when the contact between patient and doctor is frequent during treatment either on telephone or by frequent visits^{11,12}.

The factors effecting the compliance can be categorized as patient centered, therapyrelated social and economic factor, healthcare system factor and disease factor¹³. Our study was done in children and this highlighted another parent behavioral factor which is very important to consider in the treatment of pediatrics patients. There are certain limitations to this study. First, every patient who was prescribed some antibiotic did not returned for follow up especially those cared successfully. A further study is required in which a group of population should be selected and compelled for mandatory follow up. Secondly, there was no set or written counseling protocol regarding the use of medicine applied uniformly for all patients in this study. Thirdly, in his study only one or two physician were involved and counseling skills of the two persons are reflected in the study

CONCLUSION

Compliance of the medicine is still very low affected by many factors, internal or external, meditational, behavioral or economical. In children, parental education plays important role in the good compliance .In this study we concluded that uneducated people remain more compliant to the treatment with the fear of bad consequence and the people with under graduate level education interfere more with doctors' advice due to many reasons like the antibiotic is to strong, hot, harmful to kidneys or liver or they think that when the symptoms are over it is useless to give more antibiotics which are harmful to their kids.

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