

Comparison of scores in quality of life before and after counselling and treatment in children with asthma

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Abstract

Background: Asthma is the commonest chronic illness of childhood and children with asthma and their families experience significant impairment in quality of life (QOL). Early detection and counselling reduces the prevalence of asthma symptoms and improve health-related quality of life in children. The objective of the present study was to assess the quality of the basis of a validated questionnaire administered to children in the age group 6-12 years who are diagnosed as having bronchial asthma. **Material and Methods:** In this study, QOL of 100 children of both sexes in the age group of 6-12 years with asthma were assessed by using TNO-AZL QOL questionnaire (TACQOL). **Results:** In our study children with asthma had shown significant change in pulmonary function tests with protocol based treatment. The TACQOL scores as reported by the children and their parents were lower in the children with asthma after counselling compared to before counselling.

Key Word: Asthma, Counselling, TACQOL scores, Quality of life

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INTRODUCTION

Asthma is the commonest chronic illness of childhood with prevalence of 10-30%¹. It accounts for more school absenteeism than any other chronic illness. Asthma can have a negative effect on psychological and social well-being in childhood. Sports participation, school attendance, and quality of life are important issues for children with asthma and their parents. However, a structural evaluation of these factors is not always incorporated in the routine medical approach of children

with asthma. Conventional measurements provide useful information about airway status but provide little information about functional impairments that are important in a patient's everyday life. Quality-of-life (QOL) measurement is a multidimensional assessment, as it usually includes physical functioning and somatic sensation, as well as social and emotional functioning and well-being. QOL assessment is increasingly recognized as an important health outcome measure in asthma^{2,3}. Previous studies indicate that children with asthma and their families experience significant impairment in QOL¹. Children and adolescents with well-controlled asthma and lower asthma severity, which lead to a reduction in symptoms and medication use, can have a better quality of life^{4,6}. Early detection and counselling is expected for reduce the prevalence of asthma symptoms and improve health-related quality of life in children. Health related quality-of-life can be quantified using generic and disease specific questionnaires^{7,8}. Generic questionnaires deal with general health-problems that can be measured in healthy subjects and patients. Aspects of a disease can only be measurement with diseases specific

questionnaires that are developed for patients with the specific disease. In the case of children questionnaires should be developed for specific age groups in order to derive health related quality-of-life information from the child and parent⁷. The objective of the present study was to assess the quality of the basis of a validated questionnaire administered to children in the age group 6-12 years who are diagnosed as having bronchial asthma.

MATERIAL AND METHODS

This was an observational interventional prospective study comprised of children attending asthma clinic at paediatric department of a teaching hospital. In this study, a total of 100 children of both sexes in the age group of 6-12 years who were being referred for the treatment of bronchial asthma to the asthma clinical either for the first time or of follow up were included. Children with other chronic illness or with known psychological or mental problems or parents who were unlikely to give a reliable history or bring the child for regular follow-up were excluded. Hundred and twenty consecutive children in the age group 6 to 12 years with asthma as per inclusion criteria specified were enrolled. Informed consent was taken from the parents. A detailed history covering personal history, family history, living conditions, known allergies and current as well as previous treatment was elicited. Physical examination including anthropometric measurements was performed at the initial visit. Out of 120 children 20 were excluded due to various reason as per the exclusion criteria mentioned above. The remaining 100 children underwent spirometry at the time of enrolment. The children who were unable to do spirometry were also trained in the performance of spirometry. Spirometry was performed by a trained technician using compact (MIR-Medical international research, REF-Spirolab II, 125-00155. Manufacture-Italy). Quality of life was analyzed by using TNO-AZL QOL questionnaire (TACQOL). It is available as a measure of health and functional-status that incorporates appraisal of health-status. The questionnaire was administered in three language versions, English, Hindi and Marathi. The choice of language rested with the children and parent. The questionnaire consisted of questions in 4 domains: 6 for complaints⁷ for situations (symptoms provoked during activities), 9 for emotions and 6 for treatment and medications. This was administered by a single trained interviewer not involved in prescribing therapy. Parents were allowed to explain a question to the child when

needed, but not to assess in answering. Children were asked to choose response responses from the four-point response option card, wherein each item was scored from 0 to 4. If the answer was affirmative, the degree to which the child was bothered by that problem was also asked. The score of 0 was awarded if the child felt bad, 1 if the child felt the problem was quite bad, 2 if the child felt not so good, 3 if the child felt fine and 4 if the problem was absent. After data collection data entry was done in excel, data analysis was done with the help of SPSS software version 11 and sigma plot version 11. Comparison among study group for before and after intervention was done with the help of student paired 't' test.

RESULTS

Children between 6-8 years contributed to the 48% of the total study group. Majority of the children were males (81%) while 19% children were females. Family history of asthma, allergic or atopic dermatitis was present in 29 children (n=29) however there was no family history of any allergic disorder in 71 children (n=71). Most of the children (n=70) did not receive any form of treatment for asthma before participating in the study, however 30 children (n=30) received some form of asthma treatment asthma before joining the study (Table 1).

Table 1: Demographic data of the study group patients

Demographic data	Number (n=100)
Age groups	
6 to 8 years	48
8 to 10 years	33
10 to 12 years	19
Sex	
Male	81
Female	19
Family history	
Present	29
Absent	71
Received treatment	
Yes	30
No	70

Out of hundred children 29 children were having mild intermittent asthma, 30 children were having mild persistent asthma, 34 children were having moderate persistent asthma and only 7 children were having severe persistent asthma. Out of hundred 35 children (n=35) used metered dose inhalers, 31 children used MDI with spacer, 30 children used MDI with spacer and mask and only 4 children were comfortable by using rotahaler.

Table 2: comparison of variables 'before' and 'after' counselling

Variable	N	Mean	SD	Median	IQR	Paired T test	P value
FEV1/FVC	Before	86.08	6.26	86.45	7.79	7.81	<0.005 (significant)
	After	89.91	3.64	90.05	3.85		
Complaints	Before	14.81	3.86	15.00	6.00	12.88	<0.05 (significant)
	After	18.38	3.18	20.00	4.00		
Situation	Before	22.74	3.38	23.00	4.00	8.06	<0.001 (significant)
	After	24.62	2.90	24.00	2.75		
Feelings	Before	33.52	3.23	34.50	4.00	5.41	<0.005 (significant)
	After	34.98	1.89	36.00	2.00		
Medication and treatment	Before	18.73	3.23	19.00	4.00	7.22	<0.005 (significant)
	After	20.51	2.41	20.00	2.00		
Total QOL Score	Before	89.80	9.48	91.50	12.00	13.47	<0.005 (significant)
	After	98.49	7.13	100	8.75		

The TACQOL scores as reported by the children and their parents were lower in the children with asthma after counselling compared to before counselling. The total quality of life score before and after counselling and treatment showed that mean score before intervention was 89.80 whereas mean score after intervention was 98.49. The improvement in total QOL score was statistically significant ($p < 0.005$).

DISCUSSION

Physicians now recognize the importance and usefulness of incorporating an assessment of health-related quality of life (HRQL) in their clinical practice and clinical studies. Conventional measurements provide useful information about airway status but provide little information about functional impairments that are important in a patient's everyday life. QOL for a child with asthma has been defined as the measure of emotions, asthma severity/symptoms, missed school days, activity limitations and visits to the emergency department. Self-evaluation is one of the principles of QOL research; it is stated that children in the age group of 5-6 years are already capable of expressing pain and their physical condition and that the competency to describe abstract concepts such as pride and happiness matures around the age of 9-10 years. In present study, male predominance was observed. This was also reported in the Brazilian study and Nair et al study^{9,10}. Out of hundred children, mild intermittent asthma was seen in 29%, mild persistent asthma was seen in 30%, moderate persistent asthma was seen in 34% and severe persistent asthma were present in only 7% cases. In a study from Postgraduate Institute of Medical Education and Research, Chandigarh (PGIC), 85% of children in the study had moderate persistent asthma¹¹. In a study by Nair et al, mild intermittent asthma was seen in 13.04% cases. Mild persistent type of asthma was seen in 33.33% cases and 53.62% were classified as moderate persistent type of

asthma. No cases of severe persistent asthma were present in their study [10]. In the Brazilian study moderate persistent type of asthma accounted for 67.8%⁹. In the study from Turkey majority of cases (81.6%) belonged to the mild intermittent category¹². Conventionally objective measures of pulmonary function are used to evaluate progress; although there is no gold standard tool to assess this. Measurement of pulmonary function required high degree of patient's cooperation and also reasonably good pulmonary reserve to perform the tests. Therefore, interpretation of these objective measures is often hampered by subjective factors, particularly in younger children. Besides, the reading reflect a one-time measurement of the child's status unless recorded serially, which is often not feasible in home-based care. Assessment of quality of life is able to overcome several of these limitations, since it provides information of the overall status over a longer duration. There are a few tools available in western countries for evaluating QOL in asthmatic children⁷, however they cannot be directly extrapolated to Indian children due to socio-cultural differences and behavioural life-style variations, 'appraisal of health-status, is a new concept that may be very important. One of the strengths of our study is the use of a disease specific tool, the TACQOL-asthma which ensures a measurement of health status as well as appraisal of health problems. In our study children with asthma had shown significant change in pulmonary function tests with protocol based treatment. Scores in 'complaint' domain which includes complaints like cough, wheeze, tightness in the chest, shortness of breath during exercise, shortness of breath during day or night significantly decreased after protocol based treatment and counseling. Scores in situation domain which included triggers like pets, cold air/hot air, visitors, participation in the sports and playing with the friends also improved after treatment and counseling. Score in 'feelings' domain which has included the feeling like, afraid of getting and asthma attack, feeling different from other children,

feeling afraid of suffocating during an asthma attack, feeling helpless, guilty or alone were significantly improved after counseling the children as well as parents and explaining the benign nature of the disease in majority cases. The positive change in the outcome significant the effectiveness of the intervention. In our study the extensive counseling of the children has contributed to the positive outcome. In our study under the domain 'medication and treatment' after protocol based treatment and counseling, visit of the child to the general physician, visit to the out patients clinic, hospital visits because of the asthma were significantly decreased the children did not feel asthma to use the medications in front of other people, as well as they did not take the medication just because their doctor wanted them to take medication which explains the positive impact of the counseling. The "appraisal of health-status' measured in the TACQOL-asthma is a new concept that allows for studies of perception of health problems in childhood disorders. This study has shown that improvement in QOL score after counseling and treatment of asthma is possible and it is comparable with objective measures of pulmonary function. In the present study, education combined with counselling was administered in addition to the conventional pharmacologic subjects quality of life, and the intervention also improved their knowledge of asthma and their emotional status, both of which may help with the short-term and long-term management of asthma. To conclude, protocolled treatment, education and psychological counseling improved the quality of life in our group of asthmatic children. These measures also alleviated the negative emotions and psychological distress associated with asthma.

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