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Impact of APGAR score on asthma control among patients with bronchial asthma at Sri Ramachandra Hospital, Porur, Chennai

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Original article

Impact of APGAR score on asthma control among patients with bronchial asthma at Sri Ramachandra Hospital, Porur, Chennai

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Abstract

Introduction: Early identification and commencement of the treatment process prevents the impact of illness, morbidity, and mortality of bronchial asthma. Hence, nurses and the health care professionals should educate the patients and the family members about the disease process in detail. **Objective:** To identify the impact of APGAR (**A**ctivities, **P**ersistence, Tri**G**Gers, **A**dherence to asthma medications, **R**esponse to therapy) score on asthma control among patients with bronchial asthma and find the association of APGAR with selected demographic variables. **Methods:** The study was conducted in Chest OPD adopting a quantitative study design at Sri Ramachandra Hospital, Chennai, and Tamil Nadu. Sixty patients were selected by using convenient sampling technique. **Results:** Out of these sixty patients forty-four (73%) had inadequate control and 16 (27 %) adequate control over their symptoms and treatment. There was a significant association between the APGAR with the family history and the duration of asthma. **Conclusion:** The identification of asthma APGAR dimensions and control status is essential in order to improve the patient's well-being and quality of life. Nurses should be familiar about the knowledge of disease process, pharmacodynamics, and pharmacokinetic aspect of each drug prescribed to patients and the response to therapy. This can be facilitated by outpatient based early assessment, identification of risk factors and education to improve their well-being.

Keywords: APGAR score, Asthma control, chronic diseases, Bronchial asthma

Introduction

Bronchial asthma is a common health problem that has an impact on individual's physical and psychological health. As it is documented 30 to 70 % of the individuals have poor adherence to asthma medications (World Health Organization, 2013). Successful interventions to promote adherence depends on counselling, education, self-monitoring, reinforcement, reminders, and supervision (Brown & Arthur, 2013). A study identified that striving for improved adherence and asthma control is of vital concern in today's asthma management (Weinstein, 2013). Axelsson in 2013 reported that less than 50% of asthma patients are adherent to their asthma medications. A study assessed the impact of Asthma APGAR tools to enhance implementation of asthma guideline-compatible management in primary care practices among 24 primary care practice settings across the Unites States using mixed method approach. The findings reveal that implementation of asthma APGAR tools was associated with enhanced asthma visit-related medical record documentation including significant increase in recording of activity limitations, symptom frequency, medication non-adherence, asthma triggers and patient's perceived response to therapy ($P<0.01$) (Yawn, Bertram, & Wollan, 2008). Hence, investigators planned to determine the impact of APGAR among patients with bronchial asthma in this geographical area.

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Objectives

1. Determine the asthma control using APGAR among patients with bronchial asthma.
2. Associate the asthma control using APGAR among patients with bronchial asthma with selected demographic variables (age, sex, education, smoking habit, duration of asthma and co-morbid illness).

Methods and Materials

The research design chosen for the study was quantitative design. The study was conducted at Chest and TB OPD of Sri Ramachandra Hospital, Chennai. The subjects selected for the study were patients with mild to severe persistent asthma attending Chest OPD. The study population consisted of patients in the age group of 20 to 60 years with a diagnosis of bronchial asthma for more than one year, could understand Tamil or English and willing to participate in the study. Exclusion criteria included those who were not willing to participate, or suffering from any chronic illness or disability. The sample size was 60 and the sampling technique used was convenience-sampling technique.

Description of Tool: The data collection tool had three sections

Section A: Consisted of information on demographic variables such as age, education, locality, occupation, income, marital status, type of family, number of children and family history of asthma etc.

Section B: Clinical variables such as height, weight, body mass index (BMI), respiration rate

Section C: Asthma APGAR (Yawn, Bertram, & Wollan, 2008)

Asthma Control Questionnaire (Juniper, O'Byrne, Guyatt, Ferrie, & King, 1999)

Asthma APGAR tool was used to determine the subjective information from the subject's limitations with respect to their activities of daily living experience during the past two weeks and incorporated the asthma control questions. Answers to these questions and practice assessment of the various items were determined during their initial visit to the outpatient department among patients diagnosed with bronchial asthma. The scoring ranged from zero to six for each item. Five medical and nursing experts, two pulmonologists, and one psychologist reviewed the tool for face and content validity. Table 1 presents Modified asthma APGAR – patient questions and Table 2 asthma APGAR tool for practice assessment, respectively.

Table 1:

How much patients have been feeling/ limited with these activities during past two weeks.
Activities (Breathing problems- woken up during night or in the morning) 0-Never 1-Hardly ever 2-A few times 3-Several times 4-Many times 5-A great many times 6-Unable to sleep because of asthma
Persistent (Shortness of breath, wheeze, chest tightness, cough) 0-Never 1-Hardly any of the time 2-A little of the time 3-A moderate amount of the time 4-A lot of the time 5-Most of the time 6-All the time
triGGers (cigarettes, smoke, cold air, colds, dust mites dogs mold etc) 0-Never 1-A very little 2-A little 3-A moderate amount 4-Quite a lot 5-A great deal 6- A very great deal
Asthma medications(use of nasal, oral or inhaler) 0-No symptoms 1-Very mild symptoms 2-Mild symptoms 3-Moderate symptoms 4-Somewhat severe symptoms 5-Severe symptoms 6-Very severe symptoms
Response to therapy (puffs/ inhalations of short acting bronchodilator) 0-None 1-1-2 puffs/inhalations most days 2-3-4 puffs/inhalations most days 3-5-8 puffs/inhalations most days 4-9-12 puffs/inhalations most days 5-10-16 puffs/inhalations most days 6-More than 16 puffs/inhalations most days

Table 2: Asthma APGAR tool for practice assessment score

Activity (missed activity days)
Persistence (number of day and night symptoms)
Triggers (noted triggers)
Adherence to asthma medications (type and frequency)
Response to therapy

Scoring and Interpretation

Patient and practice questions: 0-6

0, 1 - adequate control

>2 - inadequate control

Data collection procedure

The Institutional Ethics Committee of Sri Ramachandra Hospital, Chennai, sanctioned permission to conduct the study. Using the APGAR tool, the patients were asked to express their experience related to limitation of the activities during the past two weeks related to each domain of APGAR.

Results

The major findings of the study are depicted below in tables and graphs.

Table 3: Distribution of sample based on demographic variables (n=60)

Demographic Variables	Frequency	Percentage
Age in years		
20-39	23	38
40-59	22	37
59-60	15	25
Gender		
Male	36	60
Female	24	40
Educational status		
No formal education	12	20
Primary school	33	55
High school	15	25
Marital status		
Married	10	17
Unmarried	23	38
Widow	27	45
Occupation		
Coolie	10	25
Unskilled	27	18
Skilled	12	30
Professional	11	27
Income in rupees per month		
≤ 5000	5	8
5001- 10,000	15	25
10,001-15,0000	16	27
15,001-20,000	12	20
> 20,001	12	20
Residence		
Rural	12	20
Semi-urban	28	47
Urban	20	33
Type of family		
Joint	23	38
Nuclear	22	37
Extended	15	25

Table 4: Distribution of sample based on clinical variables (n=60)

Demographic Variables	Frequency	Percentage
Smoking habit		
Non smoker	35	58
Cigarette smoker	25	42
Duration of asthma in years		
<1	23	38
≥1	12	20
2-5	25	42
Family history of asthma		
First degree relative	32	54
No First degree relative	28	46
Presence of co-morbid medical illness		
Diabetes mellitus	16	27
Hypertension	18	30
Cardiac disease	10	17
Gastro-intestinal disease	16	26

The data in tables 3 and 4 depict the frequency and percentage distribution of the demographic variables of patients with bronchial asthma. Among the asthma patients, 23 (38 %) belonged to the age group of 20-30 years and 36 (60 %) were men, and majority (33, 55 %) had primary education, 27 (18 %) were unskilled labourers. Only 16 (27 %) had a monthly income of Rs.10,001 to 15,000, 28 (47 %) were living in the semi-urban area, 35 (58 %) were non-smokers, 32 (54 %) had family history of first degree relative with bronchial asthma and 18 (30 %) had comorbid illness of hypertension.

The overall mean and SD of the level of medication adherence among patients with bronchial asthma was 14.9 ± ***3.45***

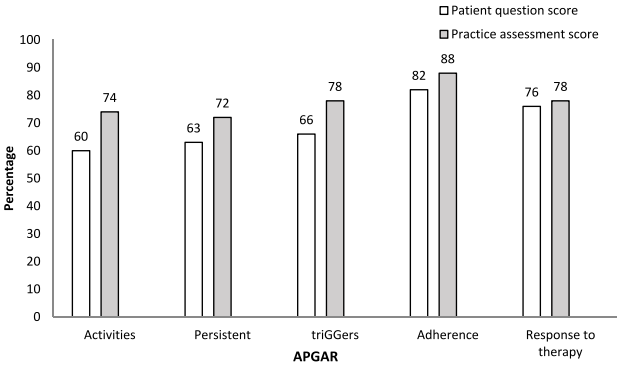

Figure 1. Percentage distribution of the domains of APGAR scoring tool on asthma control among patients with bronchial asthma

Figure 1 depicts the percentage distribution of the APGAR on asthma control among patients

with bronchial asthma, with respect to the patient score and the practice assessment score on activity limitation. It's 60 and 74 percent as majority of them said that they missed the activities in past Two weeks; persistence of both day and night time symptoms as 63 and 72 percent; triGGers they discussed that they were being exposed to the pollens, pets and dust as 66 and 78 percent. Most of them expressed that they adhered to the treatment as 82 and 88 percent; good response to therapy was noted as 76 and 78 percent.

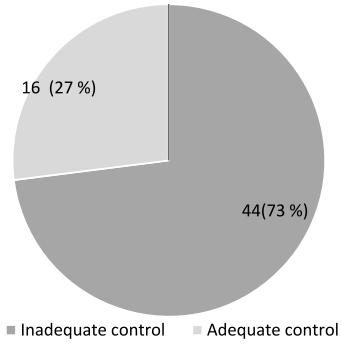

Figure 2. Frequency and percentage distribution of the level of asthma control using APGAR score among patients with bronchial asthma

Figure 2 depicts that 44 (73%) of them had inadequate control because they were unaware of the triGGers and adherence to the therapy, 16 (27%) of them had adequate control of asthma symptoms and the treatment regimen.

There was a significant association between the asthma control and family history of asthma and the duration of asthma at $P<0.05$.

Discussion

The present study was conducted to determine the impact of APGAR on asthma control and the findings revealed that majority of the patients 44 (73 %) had inadequate control over their symptoms and the treatment regimen. Hence, health care personnel should collect detailed health history related to Asthma APGAR tool and counsel them about their disease and treatment process. Levy (Levy, 2015) reported that hospital based specialist education such as the one given by the asthma nurse improves patient adherence and clinical outcomes and thereby improves the quality of life.

Conclusion

Collaborative management plan has to be developed, and it is important to explore the patient's concerns and prejudices. Asthma APGAR tool helped the patients feel "more like a partner instead of a patient" for asthma management. Nurses can discuss with the patients about their prescribed therapy and the importance of the treatment regimen and reinforce them to improve and maintain adherence.

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