



وزارة التعليم العالي والبحث العلمي

جامعة ديالى

كلية الطب



## Efficiency of Emergency Department Treatment of Asthmatic attacks in Baqubah Teaching Hospital

بمّث تخرج

الطالبة

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يوسف ٧٦

## شكر وتقدير

اتقدم بجزيل شكري وتقديري الى كل اساتذتي في كلية طب / جامعة ديالى وخصوصا السيد  
المشرف على بحثي الاستاذ الدكتور عادل حسن محمد والى والدي ووالدتي واخوتي على  
عوني في انجاز هذا البحث ومن الله التوفيق...

الطالبة

رفل ناصر كريم

## **Abstract:**

**Back ground:** Asthma is a common disease affect 5-10% of the population. The prevalence of this disease have increased during the past 20 years. Poor asthma control remains a frequent cause of emergency department presentation and hospital admission.

**Aim of the study:** To study about the patients who visit emergency department in the teaching Baqubah hospital, involving the types and efficiency of the emergency treatments of acute asthmatic attacks.

**Methodology:** By use special inform including all information's about sever asthmatic patients, we take (50) patients from emergency department in Baqubah teaching hospital, (28 male and 22 female), in a period between the (January / 2021— April /2021).

**Results:** By used a percent analysis of tables, the results appear that, 20% male and 14% female in age group 41-45. Regarding to house crowding, high percent among married patients >50 year age 34%. And according to duration of disease (month--- year) and the attacks 1—5 times is 54% and according to hospital visit 1—5 times 84%. According to relation of the age and chronic diseases there is a high percent 24% have hypertension in age >50. In relation between the house ventilation and attacks show 46% with good ventilation, and 66% of patients are in regular of asthmatic treatments. High percent of +ve family history 31.2 % appear in age 26-30, and -ve family history 38.88% among age >50. According to oxygen saturation >90 in age groups 16-20, and <90 in age >50. The more regimen of the emergency treatment used to patients in emergency department 20% are aminophylline infusion and dexamethasone ampule.

**Conclusions:** most of the asthmatic attacks appear in old patients and they have hypertensive disease. The incidence of disease increase more in overcrowding house. Study appear the most asthmatic attacks appear in those patients in spite of regular treatments of asthma. Any asthmatic patient should be reserve a treatment asthma as a primary care.

## **Introduction:**

Asthma is a common disease affect 5-10% of the population. The prevalence of this disease have increased during the past 20 years {1, 2}.

Poor asthma control remains a frequent cause of emergency department presentation and hospital admission {3}.

Reducing the use of emergency department for acute asthma remains a great role of asthma treatment that is recommended by all guidelines {4}.

Acute exacerbation of asthma is a medical emergency that must be diagnosed and treated urgently. The assessment of a severe asthma involving two different criteria: a static assessment to determine the severity of attack, and a dynamic assessment to evaluate the response to the treatment {5}.

The provision of efficient asthma education can also significantly reduce the risk the health care use including physician visits, emergency department visits, and hospital admission {6}.

Asthma is an important health problem in Europe, affecting about 30 million involving children and adults {7}.

According to large epidemiological study, the focused on the quality of emergency asthma care, the proportion of asthmatic patients taking inhaled corticosteroids as long term control medication was only 35% {8}.

## **Aim of the study:**

To study the asthmatic patients who visit the emergency unit in Baqubah teaching hospital in case of sever attack of asthma including number of visit and attacks , and which types of emergency treatment receiving with efficiency of the treatments.

## **Methodology:**

The study was done in the emergency department of Baquba teaching Hospital in period between the (January / 2021—April /2021). By instruct formula which consist of many data include sex, age environment, crowding, duration, number of visit and attacks with type of treatments and oxygen saturation.( 50) patients was taken (28 male and 22 female). And by use a percent analysis of tables.

## Results:

**Table 1: Attacks of Asthma according to the Age, Sex and related House Crowding**

Age/year	sex				Marital status					
	Male	%	Female	%	Married	%	No. of child		Unmarried	%
							1-5	>5		
16-20	3	6	5	10	2	4			6	12
21-25	4	8	3	6	1	2			6	12
26-30	3	6	2	4	1	2	1		4	8
31-35	2	4			2	4	2			
36-40	2	4	2	4	4	8	2	2		
41-45	10	20	7	14	5	10		1	1	2
46-50	1	2							1	2
>50	3	6	3	6	17	34	6	11		
<b>Total</b>	<b>28</b>	<b>56</b>	<b>22</b>	<b>44</b>	<b>32</b>	<b>64</b>	<b>11</b>	<b>14</b>	<b>18</b>	<b>36</b>

**Table 1:** show that the high percent of the asthma 20% males and 14% females among the age group 41-45 years, and low percent in males 2% in age between 46-50, and in females 4% in age between 26-30 and 36-40. Regarding to house crowding , the high percent among age group >50 married patients 34% and in unmarried 12% in the age group 16-25, and low percent in married patients 2% among age between 21-30, and in unmarried 2% between age 41-50 years.

**Table 2: Relation between the attacks of the asthma with duration of the disease and hospital visit**

No of the Attack	Duration of the disease				No. of the hospital visit			
	Months - years	%	>1 year	%	1-5	%	>5	%
1-5	27	54	18	36	42	84	3	6
6-10	1	2	3	6	2	4	2	4
>10	-	-	1	2	1	2	-	-
<b>Total</b>	<b>28</b>	<b>56</b>	<b>22</b>	<b>44</b>	<b>45</b>	<b>90</b>	<b>5</b>	<b>10</b>

**Table 2:** show high percent of disease between the group of duration of the disease between (months – year) and the asthmatic attacks of 1-5 times is 54% and also the same group of more than year have 36%. And low percent 1% between the patient with 6-10 attacks have duration of (month – year). And high percent in patient with hospital visit 1-5 have 84% and low (2%) to patient with attack more than 10.

**Table 3: Relation of asthma according to the age with chronic diseases.**

Age/year	Chronic Diseases					
	HT	%	D.M	%	During Allergy	%
16-20	-	-	-	-	1	2
21-25	-	-	-	-	2	4
26-30	-	-	1	2	-	-
31-35	-	-	1	2	-	-
36-40	2	4	-	-	-	-
41-45	1	2	2	4	-	-
46-50	-	-	-	-	1	2
>50	12	24	8	16	2	4
<b>Total</b>	<b>15</b>	<b>30</b>	<b>12</b>	<b>24</b>	<b>6</b>	<b>12</b>

HT=Hypertension

D.M= Diabetes Mellitus

**Table 3:** show the relation according to the age and chronic disease, the high percent have hypertension 24% and diabetes mellitus 16% among the age >50 and who have drug allergy in patients age groups 21-25 and >50 have 4%. And low percent of hypertension between the age group 41–45 have 2% and diabetes mellitus in age group 26 – 35 have 1% and low in drug allergy between age 16 – 20 and 46 – 50 have 2%.

**Table 4: Relation between the asthmatic attacks and house ventilation with regularity of the treatment.**

No. of Attacks	House ventilation						Regularity of treatment			
	Good	%	Moderate	%	Bad	%	Regulatory	%	I regulatory	%
1-5	23	46	14	28	7	14	33	66	12	24
6-10	3	6	-	-	2	4	2	4	2	4
>10	1	2	-	-	-	-	-	-	1	2
Total	27	59	14	28	9	18	35	70	15	30

**Table 4:** show relation with house ventilation and regularity of treatment, the high percent in group of number of attack 1-5 have good ventilation 46% and moderate 28% with bad 14%, low percent between attacks >10 have good ventilation 2% and the bad ventilation 4% between group of attack 6-10 . and for regulation of treatment show the high percent of the regularity in patient group 1-5 attack have 66% and irregular have 24% and low percent with irregular 2% in group >10 attacks.

**Table 5: Relation of the age of the asthmatic patients with family history and O<sup>2</sup> saturation (PO<sub>2</sub>)**

Age/Year	Family History				O <sup>2</sup> saturation (PO <sub>2</sub> )			
	+ ve	%	-ve	%	>90	%	<90	%
16-20	4	12.5	4	22.22	7	14	1	2
21-25	6	18.25	1	5.22	6	12	1	2
26-30	10	31.25	1	5.22	5	10	-	-
31-35	2	6.25	-	-	1	2	1	2
36-40	2	6.25	2	11.11	3	6	1	2
41-45	4	12.5	2	11.11	3	6	3	6
45-50	-	-	1	5.55	1	2	-	-
>50	4	12.5	7	38.88	6	12	11	22
Total	32	64	18	36	32	64	18	36

**Table 5:** show relation between the age and family history of the disease and oxygen saturation. The high percent who have +ve family history among the age group 26-30 have 31.25% and -ve family history among the age group >50 have 38.88%, and low percent among the age group with +ve history between 31-40 years have 6%. with -ve history among the age 21-30 and 45-50 years, have 5.55%. and with relation to oxygen saturation, high percent of >90 among age group 16-20 have 14%, and low saturation <90 among the age group >50 , is 22%. Low percent of >90 in the age group 31- 35 and 45- 50 years have 2%. While low percent in <90 oxygen saturation between the age group 16-40 have 2%.



**Table 6: According to patients and types of treatment giving**

Types given treatment	No. of patients	%
Ventolin inh. + O <sub>2</sub>	7	14
Aminophyllin infusion + O <sub>2</sub>	1	2
Aminophyllin infusion +O <sub>2</sub> + Dexamethason amp.	5	10
Hydrocortison vial + Ventolin inh.	1	2
Ventolin inh. +aminophylline infusion.	5	10
Aminophyllin infusion + O <sub>2</sub> + Ventolin inh.	1	2
Dexamethason amp. + Ventolin inh.	4	8
Aminophyllin infusion	4	8
Aminophyllin infusion + Dexamethason Amp.	10	20
Dexamethason amp. + O <sub>2</sub>	2	4
Aminophyllin infusion+Hydrocortison vial	7	14
Dexamethason amp. + Ventolin inh. + O <sub>2</sub>	3	6
<b>Total</b>	<b>50</b>	<b>100%</b>

**Table 6:** show the regimens of the emergency treatments in emergency department. The high incidence of patients given a treatment include aminophylline infusion and dexamethasone ampule 20%. And the other involve Ventolin inhaler with oxygen 14%. The low percent of patients 2% given a treatment include aminophylline infusion and oxygen, the other is aminophylline infusion and Ventolin inhaler with oxygen. Nearly the most of the patients receive oxygen in corresponding with other treatments.

## **Discussion:**

The national and international guidelines for the management of bronchial asthma emphasize patient education and regular follow up with asthma professional {9}. While in our study showed that the substantial number of patients do not follow up asthma management with physicians and did not receive any education about asthma disease. Also our patients used emergency department as an easy way to access their asthma management instead of keeping a follow up. This is correspond to other studies which are reported the same finding {9}.

Abudahish, A et al. {10} shown that asthma management in primary care is unsatisfactory. And regarding to socioeconomic status the interest the fact that 53.5% of all patient avoided using asthma medications duo to cost concern {11}. While in our study 66% of patients useful from regular treatment of primary care of asthma.

A previous study showed that only 13% of the patients who appeared at the adult patients {12}. In our study appear that 38.88% as old age while the remnant number 60.12% of other adults.

Oxygen is recommended in patients with hypoxia to maintain oxygen saturation >90% mainly in patients who have heart disease {13}. In our study appear 22% from patients of study in age >50 have oxygen saturation <90 and need oxygen to maintain saturation >90. Some patients have normal pulse oximetry on presentation but when receive bronchodilator in emergency department develop hypoxemia because ventilation perfusion mismatching {14}. While in our study not register any of case develop hypoxemia who given bronchodilator like aminophylline and Ventolin.

Early use of systemic corticosteroid is associated with lower hospital admission {15}. In our study nearly most of the patients presentation receive steroid injection in emergency department only as an emergency treatment.

The use of theophylline/aminophylline should be reserved only for those patients not responding to standard therapy {14}. But in our study most of patients given this system of treatment in the emergency department.

A confident diagnosis of asthma cannot be made on a single visit to the Emergency Department, and the misdiagnosis of asthma is also frequent in patients managed in primary care sittings {16}. In our study the patients are frequently attending to Emergency Department is seemed to be found in severity of asthma, while in the US the causes is socioeconomic factors as reported in a US study {17}.

## **Conclusion:**

- 1- Most of the asthmatic attacks appear in old patients and they have hypertensive disease.
- 2- The incidence of disease increase more in overcrowding house.
- 3- In study appear the most asthmatic attacks appear in those patients in spite of regular treatments of asthma. Any asthmatic patient should be reserve a treatment of asthma as a primary care

## **References:**

- 1- Gupta RS, Weiss KB: The national asthma education and program asthma guidelines: accelerating their implantation and facilitating their impact on children with asthma, 2009, 123: 193-198.
- 2- Al Frayh AR, Shakoor Z, Gad El Rab MO, Hasnain SM: Increased prevalence of asthma in Saudi Arabia. *Ann Allergy Asthma Immunology*, 2001, 86(3): 292-296.
- 3- Adams RJ, Smith BJ, Ruffin RE: Factors associated with hospital admission and repeat emergency department visits for adults with asthma. *Thorax*, 2000. 55(7): 566-573.
- 4- National Asthma Education and Prevention Program: Expert panel report 3: guidelines for the diagnosis and management of asthma. Bethesda (MD): national heart, lung, and blood institute. NIH Publication No. 07-4051. 2007.
- 5- Rodrego GJ, Rodrego C, HALL JB. Acute asthma in adults: a review. *Chest* 2004:1081-1102.
- 6- Zeiger RS, Heller S, Mellon MH, Falkoff R & Schatz M (1991). Facilitated referral to asthma specialist reduces relapses in asthma emergency room visits. *Journal of Allergy and clinical immunol*, 1160-1168.
- 7- Lung health in Erope Facts &Figures.A better understanding of lung disease and respiratory care in Erope. European Respiratory Society, The Eropian lung white book 2013.
- 8- Hasegawa K, Sullivan AF, Tsugawa Y, Turner SJ, Massaro S, Clark S, Tsai CL,Camargo CA jr: MARK-36 Investigators . Comparison of US emergency department acute asthma care quality, *J Allergy Clin Immunol* 2015: 135 (1): 73-80.
- 9- Garrett JE, Mulder J, Wong- Toi H: Characteristics of asthmatics using an urban accident and emergency department. *N Z Med J*. 1988, 101 (847 Pt 1): 359-361.
- 10- Abudahish A, Bella H: Primary care physician perceptions and practice on asthma care in Aseer region, Saudi Arabia. *Med J*. 2006, 27 (3): 333-337.

- 11- McCarren M, McDermott MF, Zalenski RJ, Jovanovic B, Marder D, Murphy DG,(1998)Prediction of relapse within eight weeks after an acute asthma exacerbation in adults. *Journal of clinical Epidemiology*, 51: 107-118.
- 12- Mallmann F, Fernandes AK, A Vila EM, Nogueira FL, Steinhorst AM, Sauicido dz, (2002). Early prediction of poor outcome in patients with acute asthma in the emergency room. *Brazilian Journal of Medical and Biological Research*, 35: 39-47.
- 13- National institute of health, National asthma education and prevention program. Guidelines for the diagnosis and management of asthma 2007: Publ. No. 80-4051.
- 14- Roy SR, Milgron H. Management of the acute exacerbation of asthma. *J Asthma* 2003: 40: 593-604.
- 15- ROWE BH, Edmonds ML, Spooner CH, Diner B. Corticosteroid therapy for acute asthma. *Respire Med*. 2004: 98: 275-284.
- 16- Hefler E, Crimi C, Mancuso S, Camisi R, Puggioni F, Brussino L. Misdiagnosis of asthma and COPD and underuse of spirometry in primary care unselected patients. *Respire Med*. 2018: 142: 48-52.
- 17- Hasegawa K, Tsugawa Y, Brwn DF, Cambargo CA Jr. A population-based study of adults who frequently visit the emergency Department for acute asthma, California and Florida. *Ann Am Thorac Soc* 2014, 11(2): 158-163.