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DEPARMETMENT OF COMMUNTY AND FAMILY MEDICINE



**Risk factors of bronchial asthma in children attending Center for
Allergy & Asthma in Diwaniya Teaching hospital in AL-
Diwaniya Province –Iraq 2018**

A Thesis

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Equivalent to Master Degree in family medicine

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صدق الله العلي العظيم

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Dedication

To My Supervisor

To My Parents

To My Family

To My Mentor

With Respect

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List of Abbreviations

ISAAC	International Study Of Asthme and Allergics In Childhood
BMI	Body Mass Index
SPSS	Statistical Package for the Social Sciences
SD	Standard Deviatoin
OR	Odd Ratio
DNA	Deoxyribonucleic acid

Abstract

Background:

Asthma is a chronic lung disorder that can make breathing difficult. It causes inflammation, swelling, and narrowing of the airways (bronchial tubes). About 25 million people in the United state have asthma; 7 million of those are children. Asthma is more common in developing countries. Environmental factors and diet may explain the difference in prevalence of asthma in children.

Purpose : the study threw alight on some risk factors of bronchial asthma in childhood.

Patients and methods:

Case conrol study, enrolled 97 asthmatic children patients who attending Center for Allergy & Asthma in Diwanyia, Teaching hospital, The control group was composed of 104 age and sex matched children attending the outpatient clinic in general hospital and maternity hospital with non pulmonary health problems.

data collection by questionnaire which is a modification of the ISAAC (International Study of Asthma and Allergies in Childhood), data analysis by application of SPSS program version 18. analysis. $P < 0.05$ was considered significant.

Results: 97 asthmatic children with age range from 1-15 years, mean age 8.5 ± 3.7 years, Male to female ratio 1:1.4, 34 % were overweight, 21,8% were obese. result reveal 52% of asthmatic children had family history of asthma, while 23% of them had family history allergic rhinitis and 11.3% of them had family history of eczema, 96% had history of family member smoking.

Conclusion :

The study concludes certain risk factors being associated with asthma namely positive family history of asthma , passive smoking high body mass index, Recurrent chest infection

Key words; asthma, risk factors family history, Obesity, overweighing, smoking.

Chapter one

INTRODUCTION

Literature's Review

Introduction

Asthma is one of the commonest noncommunicable disease affect children, lead to chronic disability , risk factors remains uncertain about it⁽¹⁾.

Some time hereditary relation is more probable , gene and environmental interrelation probably causes worlds changes in prevalence of asthma ⁽²⁾. Some time environment aggravating factors like infection and exposures to toxin may reduce asthma attack or may be protected from disease, these depended on period of exposure or time at which start of disease ⁽³⁾.

Padmaja Subbarao 2009 reported (most of pre-natal causative factor, like smoking during pregnancy, had establish . but food and nutrient , stressing , uses of drugs like antibiotics and type of delivery some time effect the early developed of asthma ⁽¹⁾).

After this in late childhood, other risk factors like exposure to allergen breastfeed ,gender and family crowded ⁽³⁾.

The now a day elevated in the rate of asthma in world, had documented by many studies of the incidence , prevalence and criteria of asthma disease⁽²⁾.

study by Janson C ⁽⁴⁾ reported (examine time trends inside and through population. During more participated country were conduct between 1992 and 1994, the asthma was stable rate or decrease in some countries but increase in others region, more prevalent especially at age 13-14 year⁽⁴⁾).

There were a range of difference in prevalence had been revealed by studies of childhood show lower rate (3%–5%) in Asian regions (in China and India) and more rate (16%–21%) in the Britain , north America and other west country^(5,6)

Studies on migration population⁽⁷⁾ had evident support the role of environment factor, like allergen and life-style factor ⁽⁸⁾.

A new analyze data from different countries from north America and from china by Wang HY, after comparing data conclude there were different prevalence in children same racial but living various environment with considered duration of residence ⁽⁹⁾.

(On other hand prevalence were low for children born in china with age 12-15 and studied after migrating to Canada but those born in Canada for china family had high rate of asthma ⁽⁹⁾). These finding document hereditary environment relation or interaction ⁽⁹⁾.

Other international studies in different countries may provide evidence for the epidemiological and causes of aggravating of asthma.

Anto JM reported out break of asthma exacerbation in Spain's cities , was link to exposure to air soybean dust release during cargo handling in regional ports ⁽¹⁰⁾.

Johnston NW reported the high predicted yearly epidemics of asthma attack in young age of children in the northern hemisphere in autumn season , peaked first month after the start school, appear to be predominant by virus infection rhino-virus, possible accompanied by others factor of asthma attack, like reduce drug therapy for asthma in summer or allergen or due to stress ^(11,12).

Children asthma is a high clinical burden all over countries . It a costly burden on parents and community. It could be cause considerable lose of school days, and lead to deprive children from social relation ⁽¹³⁾.

Burke W documents asthma in children also puts huge burden on health center resource as a result of physician and health center visit and cost of treatment ⁽¹⁴⁾.) It had document that the rate of asthma has rise dramatically in past 60 years in all countries with high different in location ⁽¹⁵⁾.

The reason for these high prevalence are not clear may be due to multiple contributing factors, These variation was probable due to

multiple exposure to chest infection, foods, air pollution, genetics, residence, environmental factors and lifestyle⁽¹⁶⁾.

Some experts workers in field said these children had been exposed to multiple allergen like as dust , smoking these could be aggravating factor for disease⁽¹⁷⁾.

Asthma is thought to be caused by a combination of genetic and environmental factors.⁽¹⁴⁾ Environmental factors include exposure to air pollution and allergens.⁽¹³⁾

Diagnosis is usually based on the pattern of symptoms, response to therapy over time, and spirometry⁽¹⁵⁾

There is no cure for asthma. Symptoms can be prevented by avoiding triggers, such as allergens and irritants, and by the use of inhaled corticosteroids⁽¹⁴⁾

Many other conditions can cause symptoms similar to those of asthma. In children, other upper airway diseases such as allergic rhinitis and sinusitis should be considered as well as other causes of airway obstruction including foreign body aspiration, tracheal stenosis, laryngotracheomalacia, vascular rings, enlarged lymph nodes or neck masses.⁽¹⁷⁾ Bronchiolitis and other viral infections may also produce wheezing⁽¹⁶⁾

In Iraq, asthma more prevalent as other countries, mostly in school age children .There were no data base could be obtained from national or local office for accurate prevalence in community, also had increase burden of health resources⁽¹⁸⁾.

Objective :

the study aim to throw alight on probable risk factors of bronchial asthma in childhood in Al-Diwanyia governorate .

Literature Review

Asthma had been increase in rate all over the world in last 50 years⁽¹⁹⁾

In some time in asthmatic children the disease symptoms may get remission in time with age⁽²⁰⁾. But in other children persist through all life some time cause sever impairment like dyspnoea⁽²¹⁾.

With increase in incidence and prevalence of asthma there were increase morbidity and mortality leading to high burden on family and health resources⁽²²⁾.

Asthma affects about 5.3 million American children between the ages 5-14 years, in addition about half of American children may be undiagnosed⁽¹⁹⁾.

The reason for these high elevation in asthma disease still obscure and may be attributable multiple risk factor⁽²³⁾.

Atopy which define as patient tend to manifestation of different type of allergy, which consider one of risk factor for developing of asthma⁽²⁰⁾. atopy is mostly genetically determine and gene change in a population happened on slow manner more slowly so this cannot explain highly elevation in rate developing asthma last years⁽²⁴⁾.

Recent studies had shift evident from allergen which that may cause sensitize or trigger of asthma attack, to factor that may 'cause the initial susceptible to asthma in allergic or non allergic pathways⁽²⁵⁾.

Many researches had indicate the exposure to infection in early life, lead to sensitization of immune systems which in turn protective from develop⁽²¹⁾.

Dezateux C reported the children that had exposed to allergen or irritant early in life, such as air pollution or passive smoking in environment may have aggravating factors in developing asthma not just hereditary role⁽²⁶⁾.

Aggravating factor could be patients characteristic like genetics or acquire from environment, such as male more predominance in the early life, reach the age 13-15 years the representation equal, then female become more after puberty⁽²⁷⁾.

Asthma was prevalent in urban with comparism to rural area⁽²⁸⁾. Urban lifestyle is related to increase in asthma appearance. And low economic status had significant role in developing asthma, residency in urban associated with high risk than rural area⁽¹⁹⁾.

Many European researches have reported exposure in early life to farming crops may be associated with low risk of developed of asthma⁽²⁹⁾. these due to cause high level of toxin from microbes in farm leads to the produce of many cytokine (like interleukin-12, interferon- γ) which thereby reducing asthma risk⁽³⁰⁾.

Studies by Willers SM in the USA ha reported found that grow up in a farm related with increase chance of developing of asthma, because of had level of toxin in blood from exposure⁽³¹⁾. These difference in result of studies may be due to variation in farming practice, chemical substance uses or other behavior in life such as food^(32,33).

Interestingly, several authors also observed that children with no siblings were at lower risk for asthma than were children with one or two siblings, a finding that suggests the need for a more complex "hygiene hypothesis"⁽³²⁾.

Environmental exposures and lifestyle factors are important for early-life asthma development while both indoor and outdoor environmental exposures in the first years of life may play crucial roles in the etiology of childhood asthma⁽³³⁾.

There were a doubt in relation of gender and asthma. Some author and studies suggested a direct relation^(34,35,36). While no such association was found by others studies^(37,38,39).

Waqar Al –Kubaisy reported (in Iraq culture habit of keeping female most time indoor and these lead to less exposure to external environment, some time infection in female in early life may had protective action ⁽¹⁸⁾ .

Studies in the Middle East show that the prevalence of asthma is higher among younger boys⁽²³⁾ .

However, the difference decreases between the two genders in early adolescence. In Japan rate of asthma was higher in male (5%) than female (3%) ⁽⁴⁰⁾ .

In Turkey, the prevalence of asthma in boys about (18%), higher than girls (16%), similar to Nigeria, South Korea, and India ^(40,41,42)

The prevalence of asthma in countries around the world in the age group 5 to 8 years varies from 2% in Lithuania to 26% in Costa Rica. In the age group 12 to 15 years the lowest prevalence rate reported from Albania (3%) and the highest from Peru(29%)⁽⁴³⁾ .

The prevalence of asthma is increase in older children, e.g. in Indonesia the incidence of asthma in children 7-8 year is 5.3 % and in children 13 -15 years is 8 % . This increase was reported from Germany (5% vs. 8%) and Singapore (16% vs. 24) . in some countries such as Costa Rica the prevalence of asthma among children 5 to 8 years old (26%) ⁽⁴¹⁾ .

In a systematic review by Mirzaei M, (It was reported in 10 countries (25.7%) that the difference was insignificant, and in only 5 countries the prevalence of asthma was higher in the 6 to 7 years age group including; Iran and Oman ⁽⁴⁴⁾ .Overall, in the Middle East, the prevalence of asthmatic children is more in the group of 12 -15 year ⁽⁴⁴⁾).

Asthma consisted from a range of different phenotype that have different presentation, causation and physiology. Every phenotype had characterize by hereditary or environment or personal factor, specially family history of asthma ⁽⁴⁵⁾ .

The elevation in prevalence of asthma in past years with geographical variation, give evident about role of environment change in epidemic of asthma⁽⁴⁴⁾.

Again environment changes may effect patient indifferent time of host life, and the probable these risk factor changeable during time⁽⁴⁵⁾.

Family and twin researches have document genetic play an role in trigger of asthma , by many gene of mild effect^{16,17)}

Galanter J study reveal many genomic region and more than 90 gene response for developing asthma specially in long arm of chromosomes 2,5,7 and 13⁽²⁰⁾.

Dezateux C conclude (wide range heterogeneity in the gene base of asthma, and in hereditary – environmental interactions, is likely, failed to precise quantify environment exposure and time of these exposure may be difficult to authors to document gene relation⁽⁴⁶⁾.)

trigger factor in the pre-natal are common, monitor of wheeze condition occur in infancy and later on which is some time lead to asthma⁽⁴⁷⁾.

Pre-natal mother smoking had been significantly related with early asthma⁽⁴⁸⁾ and there is a dose response interrelation between exposure to smoking and decrease airway diameter⁽⁴⁹⁾

maternal food consumption during pregnancy had documented triggers effect in developing asthma later on in life, Willers SM, examine nutrition of pregnant women and relation develop of allergic disease he focus on on foods with anti-inflammatory property (like , omega-3 fatty acids) and antioxidants such as vitamin E and zinc, had evident these type of foods decrease incidence of atopic diseases^(50,51).

While Kramer MS, identified no such protection from the development of atopic disease in infant had occur in relation to maternal foods during pregnancy⁽⁵²⁾.

While Camargo CA Jr, reported an inverse correlation of vitamin D level during pregnancy and asthma in post neonatal period, but no relation in later life^(53,54).

The uses of prenatal antibiotic treatment may precipitate for asthma, the association between them has been examined in two way: first with treatment of any antibiotics during pregnancy by number of course of antibiotic. by Jedrychowski W, which reported great risk of asthma in early life may be persist⁵⁵, and Second Benn CS a doses response association between number of antibiotic course and risk of asthma⁽⁵⁶⁾.

Type of delivery of infant like normal vaginal or cesarean section also implicated for risk factors, some authors reported that developing of asthma was two to three time more common in infant delivery by cesarean section⁽⁵⁷⁾

The reason for these result due to stress during operation and variation in the infant gut micro flora related with difference mode of delivery⁽⁵⁸⁾.

Phenotypes of asthma

Although some 50% of preschool children have wheezing, only 10%–15% have a diagnosis of “true” asthma by the time they reach school age⁽⁵⁹⁾.

Commonly described phenotypes in early infancy and childhood are transient wheezing, nonatopic wheezing, late-onset wheezing and persistent wheezing⁽⁵⁹⁾. Only transient wheezing in early infancy has been well characterized, with decreased airflow rates on pulmonary function testing at birth, onset of wheezing within the first year and resolution by mid-childhood with no lasting effects on pulmonary function⁽⁶⁰⁾.

The other 3 phenotypes have been described primarily by age of onset in cohort studies, and their genesis in early infancy is largely unknown⁽⁵⁸⁾.

The majority of children with persistent wheezing (in whom asthma will subsequently be diagnosed) experience their first symptoms before age 3⁽⁵⁸⁾. By 3 years, they have abnormal lung function that persists to adulthood, and by adolescence, most have atopy⁽⁶⁰⁾. Of children with nonatopic and late-onset wheezing, some experience remission, whereas others experience persistent symptoms and atopy⁽⁶⁰⁾.

Distinguishing among these different phenotypes in early childhood is critical to understanding the role of risk factors and their timing in early infancy⁽⁵⁹⁾.

The effect of breastfeeding on the risk of childhood atopy and asthma become more prominent. Some authors had show protective effect⁽⁵⁹⁾, where as other researchers had reported higher prevalence of asthma in breastfeeding children^(60,61).

A meta-analysis⁽⁶²⁾ and several individual studies showed that exclusive breastfeeding for at least 3 months was associated with lower rates of asthma between 2 and 5 years of age, with the greatest effect occurring among those with a parental history of atopy. One of the difficulties in interpreting these data lies in differentiating viral-associated wheeze in childhood from development of atopic asthma. In a longitudinal birth cohort study, breastfeeding was associated with a higher risk of atopic asthma in later childhood, with the greatest influence occurring among those with a maternal history of atopy⁽⁶²⁾.

Kull I, reported a difficulty in interpreting data for beneficial of breast feeding for protection from asthma later on of life due confounder effect of viral infection during early life, have document more allergic disease with breast feeding specially those of maternal history⁽⁶³⁾.

The effect of restriction of some type of nutrition that contain allergen during breast feed was still controversial. In some researches, say restriction of egg and fishes from the pregnant food are associate with decrease asthma in infancy⁽⁶⁴⁾ but other authors not consist these results⁽⁶⁵⁾.

Study by Muraro A, which follow children up to three years have reported no influent of mother restricted some type of foods during breast feeding on develop of asthma later⁽⁶⁵⁾.

Prenatal and postnatal exposure to tobacco smoke lead to decreased airway diameter and patency in infancy have reveal as trigger factors for asthma^(47,60).

Furthermore, Haland G have suggest there were an associated between reduction in airway patency in the first month of life and develop of asthma in later life⁽⁶⁶⁾.

Other researches reported infant whom had asthma persist have normal air ways closely after birth, with normal lung function these evident a risky period in early life, after this exposed to environmental factors or infections, that cause permanent damage to respiratory passages⁽⁵¹⁾, while infant that appear early wheeze had decrease air passages immediately after birth⁽⁶⁷⁾.

The magnitude of the effect of this risk factor in isolation (i.e.,without concomitant allergy) is unclear; perhaps individuals with smaller airways require less stimulus (i.e., airway inflammation) before symptoms become apparent. Children with wheezing (and diagnosed asthma) persisting to adulthood have a fixed decrement in lung function as early as age 7 or 9 years⁽⁶⁶⁾ Recent studies of preschool children have documented abnormal lung function in children with persistent wheezing as young as age 3 years⁽⁵⁹⁾.

However, some infants in whom persistent wheezing develops have normal lung function shortly after birth, which suggests a critical

period of exposures within the first few years of life, before the development of these persistent abnormalities in expiratory flows⁽⁵¹⁾.

In contrast, infants who exhibit early transient wheezing have decreased airflow shortly after birth⁽⁶⁷⁾

Maternal smoking with in utero nicotine exposure has been correlated with this type of lung dysfunction, but the effects of other exposures have been less well studied⁽⁴⁷⁾.

Familial sizes and the numbers and orders of sibling may influence the probability of attack of asthma, the theory of hygiene imposed that exposed of infant to multiple infection in early life may be potentiate the immune system against develop asthma⁽⁶⁸⁾.

Other study reported first born infant in family had more risk to develop asthma than late born infant because late one exposed to infection sources from older child in family, these evident with allergic studies⁽⁶⁹⁾, but these result had refused by new study of asthma incidence which demonstrate that big family more than 5 is associate with a low prevalence⁽⁷⁰⁾.

Furthermore, doubt has been cast on simplistic renditions of this hypothesis, in that infections per se cannot explain some epidemiologic patterns (e.g., prevalence rates for allergy and asthma are high in some South American countries, where exposures to infection are higher than in some countries with lower rates of asthma³). In addition, not only allergic but also autoimmune and other chronic inflammatory diseases are increasing,⁸⁷ a trend that is difficult to explain by the hygiene hypothesis alone, since allergic and autoimmune diseases are associated with competing immunologic phenotypes⁽⁷¹⁾.

Children with family of lower socio-economic class have high burden of morbidity from asthma⁽⁶⁹⁾, these result may depended on how economic state are evaluated and on the particular output measured, sometime authors had identified an association of low

social economic status with high prevalence of respiratory airway obstruction⁽⁷¹⁾.

Difficulty in life of family and stress in Parental life had been related with wheeze in neonatal and infant period which is associated with develop asthma⁽³⁴⁾, patient whose develop asthma give history of great level of stress in parents life⁽⁷²⁾

Whether socio-economic status is as relevant to the incidence of allergy and asthma as it is to the expression, severity and management of these diseases remains unclear. Parental stress has also been prospectively associated with wheezing in infancy, and family difficulties have been linked to asthma⁽³⁴⁾

Children whose caregivers report high levels of stress and who have difficulties parenting are at greatest risk for asthma⁽⁷¹⁾

The use of antibiotics has been associated with early wheezing and asthma in several studies, One suggested mechanism for this association is immunologic stimulation through changes in the bowel flora⁽⁷²⁾, but Kummeling and associates found no coincident increase in eczema or atopy, despite increased wheezing rates, which would argue against this mechanism⁽⁷³⁾.

Greater antibiotic use might also represent a surrogate marker for a higher numbers of infections (perhaps viral) in early life⁽⁷²⁾.

Viral infections of the lower respiratory tract affect early childhood wheezing. Whether lower respiratory tract infection promotes sensitization to aeroallergens causing persistent asthma is controversial: childhood viral infections might be pathogenic in some children but protective in others⁽⁷⁴⁾.

The mothers with history of asthma or allergy, had infant defect in maturation of synthesis of cytokine early in life, that may be lead to development of persistent or severe viral infections which in turn play a role in asthma^(73,74).

Several viral infections of the respiratory tracts in hereditary susceptibility infant which is already sensitized to specific allergen some time leading to development of asthma.

There were doubt in these mechanism some authors conclude the effect of virus infection alone to cause asthma (e.g., respiratory syncytial virus, rhinovirus) or super impose of infection with exposure to trigger factor in environment such as air pollution, smoking and diets⁽⁷⁵⁾.

Friedlander SL, also identify recurrent chest infection may lead to develop asthma in infant who have prone for asthma because parent history of asthma⁽⁷⁶⁾.

Severe infection with certain viruses such as respiratory syncytial virus and rhinovirus may play a role in persistent wheezing, although other studies have suggested no effect⁽⁷²⁾. Considered as a proxy for viral infections, daycare attendance is associated with greater incidence of early wheeze but lower incidence of persistent wheeze⁽⁷⁷⁾

Total serum immunoglobulin E level, a surrogate for allergen sensitivity, has been associated with the incidence of asthma.

High levels of immunoglobulin E at birth were associated with greater incidence of both atopy and aeroallergen sensitivity but not necessarily asthma. However, sensitization to aeroallergens, particularly house dust mite, cat and cockroach allergens, is well documented as being associated with asthma.

Immune responses in the developing infant and young child may affect the development of asthma. For example, impairment in interferon γ production at 3 months was associated with a greater risk of wheeze⁽⁷⁷⁾.

Immaturity in neonatal immune responses may promote the persistence of the Th2 immune phenotype and development of atopy, but an association with persistent asthma is as yet unproven⁽⁷⁸⁾.

Other work has focused on the role of the innate immune system in handling and presentation of antigens and suggests that polymorphisms in Toll-like receptors may play a greater role than previously recognized in the development of the skewed immune responses associated with persistent asthma⁽⁷⁹⁾.

Many researchers had found a low risk of developing of asthma when exposure to farming animal in early life, these result of contact to animal are inconsistent⁽⁷⁸⁾. although, researchers demonstrate the exposure to cat were related with a more risky to develop asthma while other finding had negative association⁽⁷⁹⁾.

The influence of gene-by-environment interactions in asthma are multifactorial and complex^(80,81,82).

Fraga MF, explain the mechanism by which the genetics involve in develop asthma one of them by defect in gene building of enzyme that detoxify the trigger agent, other mechanism by direct action on DNA synthesis like as DNA methylation or histone modification, which give many type of asthma⁽⁸³⁾.

These genetic abnormality aggravating by environmental exposure to various factors like infection, smoking, air pollution maternal stress, diet and behavior all these factors along with genetics potentiate asthma to develop in susceptible child⁽⁸³⁾.

The effect of environment trigger factor like as allergen may be modifiable by gender⁽⁸⁴⁾.

The influence of some environmental risk factors such as allergens may be modified by sex⁽¹⁾. In one study of adults, 18% of women with asthma, but only 2.3% of men with asthma, had normal results on common tests related to atopy (negative skin prick tests, immunoglobulin E < 100 IU/mL and eosinophilia < 5%), which suggested different disease mechanisms between the sexes. Interactions have been found between maternal and paternal history of atopy, breastfeeding and sex of the child in terms of the risk of asthma and atopy⁽⁷¹⁾

the effect of increase weight on the developing of asthma is highly in woman than man and had not be effected by amount of diet intake or sedentary life . Some authors have conclude that causal relation between overweight and asthma^(85,86,87) .

These symptoms of asthma could greatly impact the quality of life experienced by the asthmatic individual due to restriction of activity, discomfort, embarrassment, and the constant concern for their condition. It is crucial to identify such conditions early on and implement appropriate treatment given that patterns of behavior developed during childhood serve as predictors of development of adult disease⁽⁵²⁾.thus, poor management of asthma in childhood and adolescence can lead to ineffective management in adulthood⁽⁸³⁾ ..

This increases the risk of developing additional diseases such as obesity or cardiac disease due to the restrictions (such as exercising) placed on an individual with improperly managed asthma. Furthermore, the severity of asthma as a chronic condition is demonstrated in that approximately 5,500 individuals die from asthma-related emergencies each year and the overall financial costs of asthma reached an estimated \$18 billion in 2009⁽³¹⁾ .

generally asthma is a chronic condition, but it can be controlled through proper lifestyle and good medical management. Environment exposure to allergen and air pollution can causes and exacerbated asthma, but these symptom can be improve by regulated of these exposure and the uses of proper medications⁽²⁵⁾ .

Medication for asthma consist of short term relief of symptom during attack and long-term between period of attacks, which act to prevent the occurrence of symptom⁽²⁵⁾ .

The use of medication for long-term control aims to prevent the symptoms of asthma, including asthma attacks, which are episodes in which breathing is negatively affected due to restriction and inflammation of the airways⁽¹⁷⁾ .

The most common and preferred long-term treatment is inhaled Key, current data Topic Sentence corticosteroids, which reduce

inflammation and subsequently prevent the chain reaction that leads to the presence of symptoms⁽⁴³⁾.

This preventative medication acts by blocking late-phase reactions to allergens, reducing hyperresponsiveness, and inhibiting the activation of inflammatory cell migration. Corticosteroids are the most potent and effective anti-inflammatory medication currently available to individuals with asthma and other chronic lung disease. Thus, the use of medication for long-term control is often prescribed on a daily regimen⁽⁸⁾.

Many researchers had been documented an association between asthma and allergic rhinitis, These conclude patient with asthma more exhibited symptom of allergy by dust or other air pollution⁽⁸⁵⁾, this happened while persons breathing in substance, will be stimulate immune system and initiate symptom of allergy⁽⁸⁵⁾.

These symptom mostly related to the start of clinical asthma. And treated patients with asthma by drugs to manage both asthma and allergy for effective control of disease⁽¹⁷⁾.

Several studies have suggested a reduced risk of asthma with exposure to a farming environment in early life⁽⁶⁵⁾.

It has been suggested that exposure to a farming environment causes higher levels of exposure to bacterial endotoxins, eventually leading to the production of several cytokines that shift the balance towards the TH1- over TH2- mediated immunity, thereby reducing asthma risk⁽⁸⁶⁾.

In the one study, such an inverse association with farm exposure was not evident, as there was a significantly increased risk of asthma in children with farm-related exposure⁽⁶¹⁾.

In contrast, previous studies have reported that growing up in a farming environment is associated with an increased risk of asthma and that endotoxin exposure may increase asthma risk⁽⁸⁷⁾

breastfeeding had protection benefit from developing of asthma which had documented, but still query⁽⁸⁸⁾.

The studies on breast feeding in different countries had been given evidences of protection from asthma, while other study give no such benefit or may be act as triggering factors depend on duration of lactation ⁽⁸⁹⁾. Friedman NJ, study indicated that breastfeeding is a risk factor for asthma ⁽⁸⁸⁾.

These controversial evident about relation of breast feeding and development of asthma may be due to difference in many factor, such as the age at onset of disease, genetic predisposing, family history, environmental exposure may modulate the relation between asthma and breast feeding ⁽⁹⁰⁾.

The finding of the study by Abdul Ghani ⁽⁸⁶⁾ that reported the difference in relation between breast feeding and asthma for western world because of difference in duration of feeding, in Iraq about two years and may be interfere with environment exposure to pollution ⁽⁸⁶⁾.

Other reason for difference, which is period of study and follow period for patients and age at onset of asthma are so important, when delay in onset of asthma in breast feeding patient so its protective effect and also low prevalence of asthma in breast feeding children than those no breast feeding, after the period of weaning the same rate ⁽⁹¹⁾.

Fredriksson P reported the genetics susceptibility and environment risk factor could modulate the effect of breast feeding in protection from asthma ⁽⁹⁰⁾.

Other risk factors the researcher investigated it which is breathing of oil smoke has been significantly associated with elevated prevalence of asthma, while particle from wood combustion causes significant reduction in lung function of childhood ⁽⁹²⁾.

Another finding of national studies, observe there was increased in airway patency in children after exposure to product of combustions these could be had a role in the aggravating of asthma⁽⁸⁷⁾.

Body mass index is directly related to develop asthma in children, particularly in developed world⁽⁹³⁾. Children obesity is increase worldwide, developed and developing countries and effective healthy strategy like proper diet increase physical activity, to lower rate of obesity may be lead to control prevalence of asthma⁽⁹⁴⁾.

Mitchell EA conclude in study doing in 2014 (sedentary life style such as long time in television view, is directly related to asthma symptom in children⁽⁹⁴⁾.

Nurmatov U, study in 2011 found a negative association with consumption of vegetable or fruits and asthma while patient take more fast food there were positively associated also with salt and fatty acid, and negatively associated with vitamin A, D and E⁽⁹⁵⁾.

A negative association has been identified with consumption of fruit and vegetables, and a positive association with fast foods. Positive associations with salt and trans fatty acid intake, and negative associations with vitamins A, D and E, zinc, selenium, and magnesium need further investigation, as they are amenable to intervention⁽⁹⁵⁾.

Evidence does not support an association between either vitamin C or maternal folic acid supplementation, and asthma risk in children⁽⁹⁶⁾.

The Mediterranean diet, widely recommended for the prevention of cardiovascular disease and cancer, is associated with reduced childhood asthma prevalence and represents a potential intervention that is practical and has substantial general health benefits⁽⁹⁶⁾.

Other authors does not find any association between either vitamin or folic acid supplemented during pregnancy, and developing asthma of childhood⁽⁹⁶⁾.

The restriction food, contain vegetables and fruits which is recommend for the prevention of cardiovascular disease and cancer, is also related with reduction children asthma rate and represent a more effect measure health benefits⁽⁹⁶⁾.

In different epidemiological studies observe increase in consumption paracetamol during pregnancy and subsequent asthma risk , because of the temporal association between increased paracetamol ingestion and asthma rate⁽⁹⁷⁾

The association between antibiotic use and childhood asthma risk is weak although restricted antibiotic use in childhood could have substantial public health benefits, such as a reduction in antibiotic resistance⁽⁹⁸⁾.

Regular use of inhaled β agonists increases the degree of bronchial hyper-responsiveness in children and adults with asthma, and this effect can occur within two weeks of initiating treatment, which raises the possibility that their regular use for episodic wheezing in early childhood might increase the risk of persistent asthma⁽⁹⁵⁾.

This increase in bronchial hyper-responsiveness has the potential to cause a disproportionately greater increase in the number of children with severe asthma within a community⁽⁹⁴⁾.

The authors that observe the relation between family size and developing of asthma , found the negatively associated between familial size and children asthma , these observation is only developed countries^(99,100).

It is a good evident document it can be control of asthma prevalence , because of a lot of international epidemiological studies in children reported some countries with low asthma⁽¹⁰¹⁾

These international survey had identified worldwide distribution of asthma, these studies provide data on risk factor primary prevention measure^(102,103).

Due to a range of risk factors of asthma leading to difficult in effective and feasible primary prevention strategies to asthma. These heterogeneity and complex natural history of the disease confound trial to assess the importance of host risk factors or primary prevention strategies that use single measure^(104,105).

Chapter Two

patients & Method

Study design

A case control study, enrolled asthmatic children patients who attending Center for Allergy & Asthma in Diwanya Teaching hospital, from march 2018-june 2018. This study was performed to determine some of the risk factors of childhood asthma

Data collection

97 patients were included who reported a history of more than one reversible attack of shortness of breath and/or cough in the last 12 months.

The control group was composed of 104 age and sex matched children attending the outpatient clinic in general hospital and maternity hospital with non pulmonary health problems.

The patients diagnosis based upon the patient medical history, a questionnaire containing personal details with type and duration of disease has been dependent for each patient's information aspects, which documented by the physician and history of asthma.

The questionnaire for both groups, which is a modification of the ISAAC (International Study of Asthma and Allergies in Childhood) questionnaire and then translated to Arabic. included questions concerning gender, age, height, weight, , tobacco smoke exposure habits, family asthma history and health symptoms related to asthma prevalence: asthma previously diagnosed, wheezing, dyspnea, Exposure to animal is considered present when the patient himself has contact with specified animal directly and persistently.

Additionally, Body Mass Index (BMI) was calculated by dividing weight in kilograms by height in meters square, using the formula: $BMI = \text{Weight [in Kg]} / \text{Height}^2 \text{ [in meters]} = \text{Kg} / \text{m}^2$ and then apply data to reference tables for children 1-4 years and 5-18 years according to world health organization (WHO) after this classify sample to, under weight, normal weight, overweight and Obese.

Parents or guardian assigned participation consent.

Uncompleted questionnaires or non responded were excluded. Questionnaires and their evaluation were validated by medical doctors.

Patient evaluation

Baseline assessment to evaluate the patient's clinical condition, including personal characteristics and clinical history. Asthma history collected was: type and pattern of symptoms, precipitating and aggravating factors, profile of a typical attack, impact of the disease on the child and family, development of the disease, family history, general medical history, physical environment,

The physical examination included the upper and lower respiratory tracts and the skin. Physical findings that increased the probability of asthma were hyperinflation, wheezing during forced exhalation, increased nasal secretion, mucosal swelling, nasal polyps, and allergic skin conditions including atopic dermatitis/eczema. The physical examination also included listening to breath sounds for possible ronchi, wheeze or rales and examination of nasal passages for evidence of allergic rhinitis such as nasal polyps or a deviated nasal septum.

A peak flow metre was used to measure Forced Expiratory Volume exhaled during the first second (FEV1). A FEV1 percentage of the vital capacity of less than 80% suggests airway obstruction.

Center for Allergy & Asthma

The children and adolescents that attending these center which lie within AL-Diwanyia teaching hospital were selected (some the parents refuse to participate in the study only 3 patients), The center was visited 3day the center three day per week during the period of study, each patient was interviewed and a questionnaire was filled by asking question and write the answer of patients or relatives then measure the weight and height, then checking with file of patients in office of center. Patients in the ward I depend on calling from doctor in ward after admission of patients (this represent only 10% of sample).

The inclusion criteria

- The inclusion criteria for the patients were age between 12 months and 15years;
- At least two previous episodes of wheezing
- Medically diagnosed asthma-based on clinical history, physical examination.

Ethical approval

Permissions to conduct the study was obtained from health authorities. After clarify the objectives of study for patient/ relatives and take permission for including in this study, confidentiality and privacy was considered and parents decided sharing in the study.

Statistical analysis:

Data was collected and included in a data based system and analyzed by statistical package for social sciences (SPSSversion20). Discrete variables presented as number and percentage, were analyzed using chi square. continuous variables presented as mean \pm SD (standard deviation) . Significance was set at the $P \leq 0.05$ level in all analyses.

Chapter Three

Results

Result

A study enrolled 97 asthmatic children with age range from 1-15 years, mean age 8.5 ± 3.7 years, age at onset of disease 3.8 ± 2.4 years, and disease duration 5 ± 3.7 years. Male to female ratio 1:1.4, male constitute 58% and female 42%, in control group mean age 7.2 ± 4.1 , gender distribution male 57.6% and female 42.4% as in figure 1.

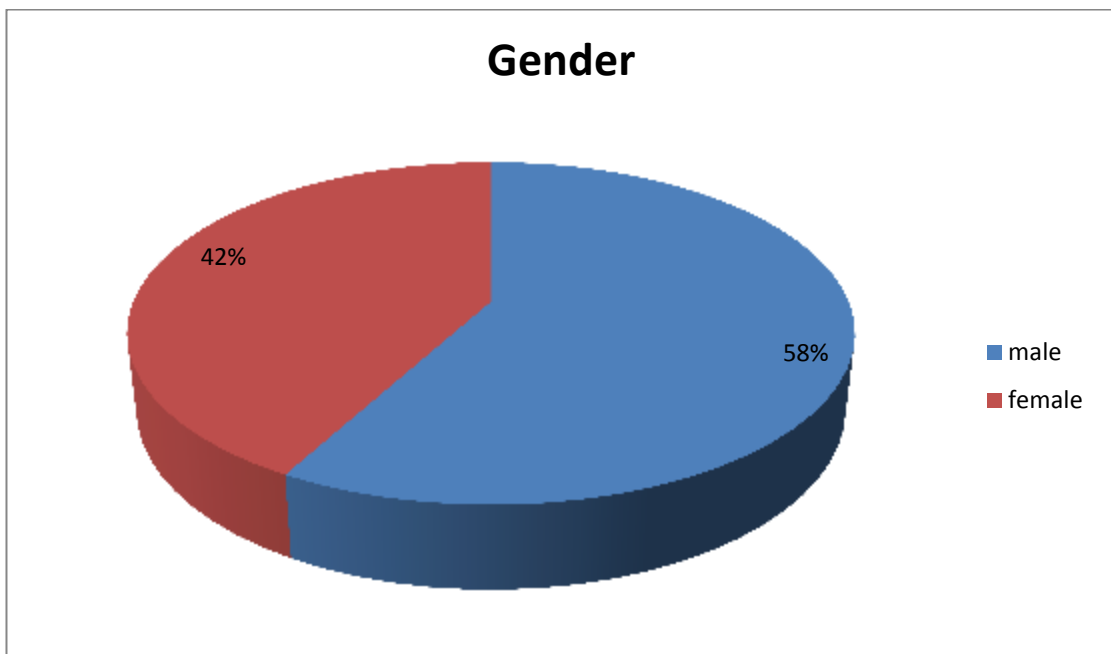


figure 1: gender distribution.

Out 97 of patients, 20.6% in age group 1-5 years, 42.2% in age group 6-10 years, 37.2% in age group 11-15 years, while in control group 51.9% in age group 6-10 years, as in Figure 2.

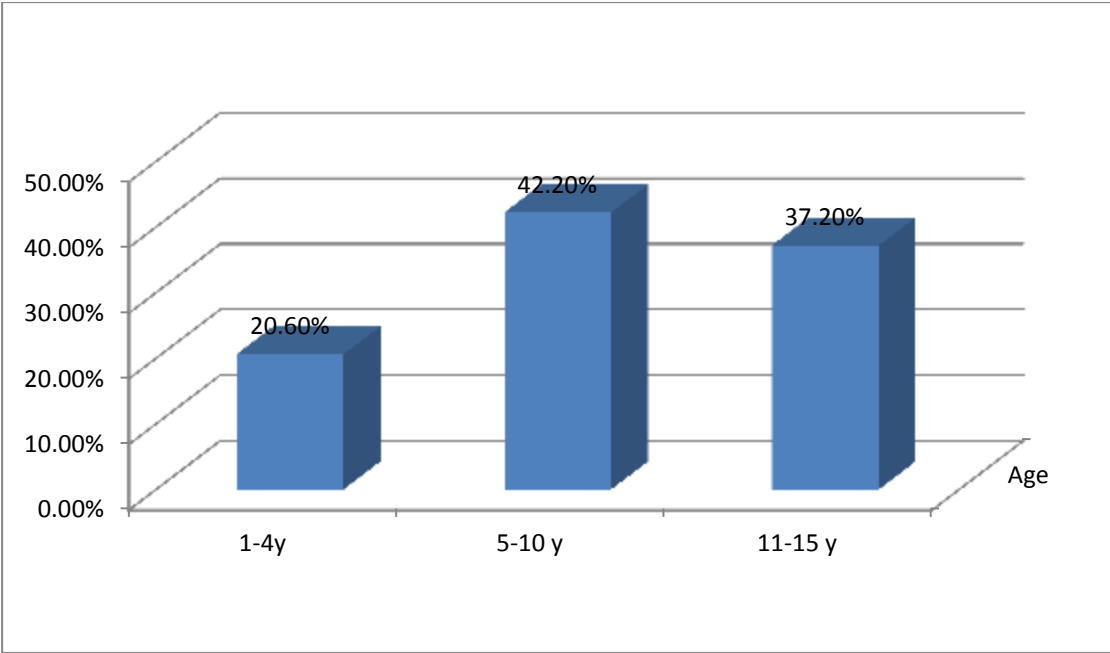


Figure 2: age group distribution.

This figure reveal 9.2% of asthmatic children were under weight, 35% were normal weight, 34% were overweight, 21,8% were obese. In control group 11.5% under weight and 32.6% over weight.

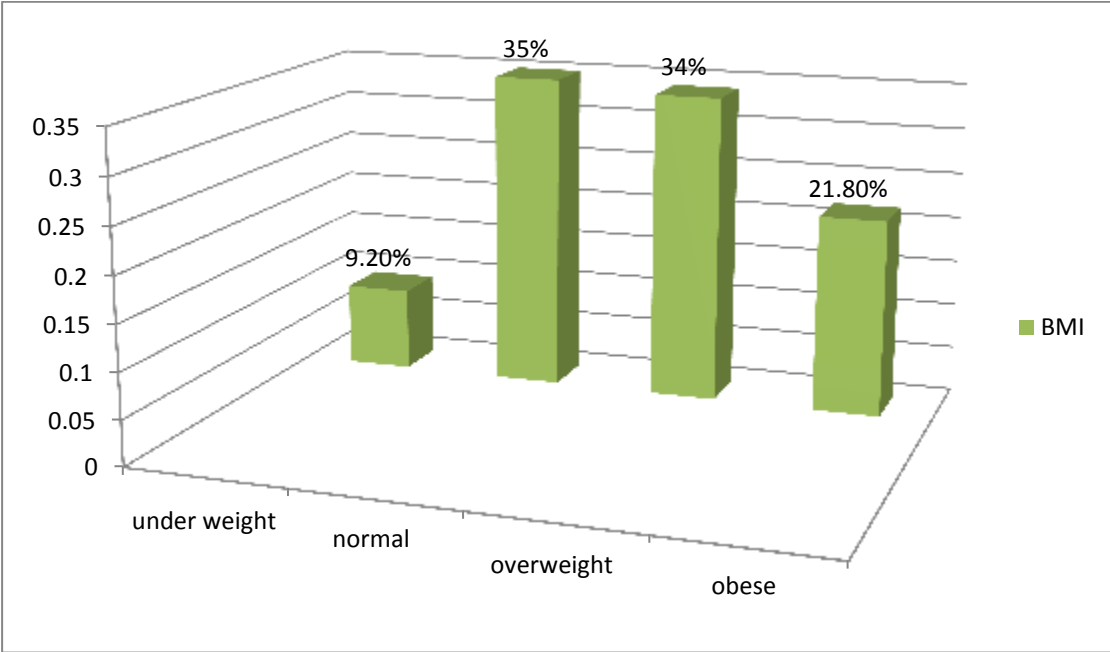


Figure 3: Body mass index distribution.

In regarding mother education 32% of asthmatics patients mother were illiterated, 33% had secondary school passed and 12.4% had college certificate or high, while father education approximately same result. In control group mother education 31.7% were illiterated, 20.3% were had primary school education,34.6% had secondary school education, as in table 4 and 5

Table 1:the difference in mother education between patients and controls.

Mother education	asthmatics	Control	p-value
	No. (%)	No.(%)	
Illiterate	31(32%)	33(31.7%)	0.6
Primary school	22(22.6%)	21(20.3%)	
Secondary school	32(33%)	36(34.6%)	
college and higher	12(12.4%)	14(13.4%)	
Total	97	104	

Table 2:the difference in father education between patients and controls.

Father education	asthmatics	Control	p-value
	No. (%)	No.(%)	
Illiterate	24(24.7%)	20(19.3%)	0.4
Primary school	17(17.5%)	29(27.7%)	
Secondary school	41(42.3%)	37(35.5%)	
college and higher	15(15.5%)	18(17.5%)	
Total	97	104	

In regarded to risk factors, our result reveal 52% of asthmatic children had family history of asthma which is statistically significant from control group, while 23% of patients give family history allergic rhinitis and 11.3% of them had family history of eczema. Six percent who complain of previous atopy, in asthmatics patients 81.5% had history of family member smoking and in control 54.8% give the same finding these significantly difference between two groups, as in

table 6.

Table 3: prevalence of risk factors in study sample.

<i>Risk factors</i>		Asthmatic	Control	p-value	OR
		No. (%)	No. (%)		
Family history of asthma	Positive	51(52%)	13(12.5%)	0.001	7.7
	Negative	46(48%)	91(87.5%)		
Family history of allergic rhinitis	Positive	22(23%)	21(20%)	0.6	1.1
	Negative	75(77%)	83(80%)		
Family history of eczema	Positive	11(11.3%)	7(6.7%)	0.3	1.7
	Negative	86(88.7%)	97(93.3%)		
Personal history Of a topy	Positive	6(6.1%)	11(10.5%)	0.2	0.5
	Negative	91(93.9%)	93(89.5%)		
Family smoking member	Present	79(81.5%)	57(54.8%)	0.001	3.6
	Absent	18(18.5%)	47(45.2%)		

44 point three percent of patients give history of bird contact or other animal in home, in control group 39.5% give such history. While in asthmatics 11.3% had history of chemical pollutant, as in table 7.

Table 4:History of bird contact and chemical pollutant

<i>Risk factors</i>		Asthmatic	Control	p-value	OR
		No. (%)	No. (%)		
Direct bird contact or other animals	Present	43(44.3%)	41(39.5%)	0.5	1.2
	Absent	54(55.7%)	63(60.5%)		
Chemical pollutant	Present	11(11.3%)	15(14.5%)	0.6	0.7
	Absent	86(88.7%)	89(85.5%)		

About residency, in asthmatics 73% of them resident in urban region, 27% living in rural region, in control 29% living rural area and 71% in urban area, as in table 8.

Table 5: resident distribution of sample.

		Asthmatic	Control	p-value	OR
		No.(%)	No.(%)		
Residency	Urban	71(73%)	74 (71%)	0.9	1.1
	Rural	26 (27%)	30 (29%)		
Total		97	104		

The results reveal 15.4% of patient delivered by cesarean section and 84.6% delivered by normal vaginal delivery, in control group 11.5% delivered by cesarean section as in table 9.

Table 6: the type of delivery in two group.

		Asthmatic	Control	p-value	OR
		No.(%)	No.(%)		
Birth by cesarean section,	Yes	15(15.4%)	12 (11.5%)	0.5	1.4
	No	82 (84.6%)	92(88.5%)		
Total		97	104		

In table 10 show gender distribution in association with family history in asthmatics patients, which conclude no significant association between them, 47.3% of male had positive family history of asthma in parents while female had 45% of them family history of asthma.

Table7: association between gender and family history in asthmatics patients.

		Family history asthmatics		Total	p-value
		Yes	No		
Gender	Male	27(47.3%)	30 (52.7%)	57	0.8
	Female	18(45%)	22 (55%)	40	
Total		45	52	97	

In table 11, reveal the rate of chest infection highly frequently with patients rather than control group, 76.2% of patients had recurrent chest infection while 29.7% of control had such problem.

Table 8: distribution of recurrent chest infection in both groups.

		Asthmatic	Control	p-value	OR
		No.(%)	No.(%)		
Recurrent chest infection	Yes	74(76.2%)	31 (29.7%)	0.001	7.1
	No	23 (23.8%)	73(70.3%)		
Total		97	104		

Chapter Four

Discussion

Discussion

Bronchial asthma is an important cause of morbidity and mortality in childhood⁽¹⁰²⁾. This study threw a light on some of the risk factors of bronchial asthma in childhood.

The study shows that childhood bronchial asthma in male 58% and female 42%, with a male to female ratio of 1.4:1, other study in Baghdad conclude asthma is more than twice more common in males (67.7%) than females with a male to female ratio of 2.1:1⁽¹⁰⁶⁾. while in tikrit (2009) study reported 52% male and 48% female of study sample⁽⁸⁶⁾.

Other study in Baghdad by Batool. A. Al-Haidary 2015 showed that asthma is more predominant among males rather than females in 2.5:1 ratio⁽¹⁰⁷⁾.

Ripabelli (2013), study show asthma prevalence was higher for boys than for girls. male constitute 50.7% and female 49.3%⁽¹⁰⁸⁾.

Also agreement with study by branco in Portugal⁽¹⁰⁹⁾.

Studies in the Middle East also show that the prevalence of asthma is higher among younger boys. However, the difference decreases between the two sexes in early adolescence. In Japan prevalence of asthma was higher in boys (6%) than girls (4%). In Turkey, the prevalence of asthma in boys (19.4%) is slightly higher than girls (16.2%) similar to Nigeria, South Korea, and India⁽⁴⁴⁾.

Asthma prevalence was significantly different comparing the industrial area and the rural area, and differences between the two areas were confirmed for gender distribution, with prevalence significantly higher in males than in females. To date, asthma has been reported to be 25-70% more common in males compared to females under age 15, while after puberty, the gender differences are reversed⁽¹¹⁰⁾. The reduced likelihood of diagnosing asthma in girls could be partly explained by the earlier onset of symptoms and a longer history of wheeze in boys, which gives them more time to be identified as asthmatics. Thus, some under-diagnosing of asthma due to female gender could not be excluded⁽¹⁰⁸⁾.

Recently, gender-specific trends revealed an increased prevalence among females causing a distribution towards the equalization, although male preponderance persists in diagnosed asthma⁽¹¹²⁾.

Moreover, the current results clarified that boys are more susceptible for asthma development which agreed with the study of the others. On the contrary some studies denoted that females were more affected with asthma⁽¹⁰⁷⁾. This is true among the adults' asthmatic patients in whom female hormones enhance TH2 activation and subsequently the disease development with IgE elevation and eosinophilia. Meanwhile during childhood males are more prevalent which may be attributed to high males' activities and their chance for catch any disease is higher than females, which perhaps may participate in asthma initiation and then development⁽¹⁰⁷⁾.

Gender affects the development of asthma in a time-dependent manner. Until age 13–14 years, the incidence and prevalence of asthma are greater among boys than among girls.

Studies through puberty have shown a greater incidence of asthma among adolescent and young adult females and a greater proportion of males with remission of asthma⁽¹⁾.

Before age 12, boys have more severe asthma than girls, with higher rates of admission to hospital. In contrast, adult females have more severe asthma than males, with more hospital admissions, slower improvement, longer hospital stays and higher rates of readmission⁽¹⁾.

Most authors have attributed these changes in prevalence and severity to events of puberty, although mechanisms for differences between the sexes have not been established⁽¹⁰⁹⁾.

In childhood, airway hyperresponsiveness is more common and more severe among males; however, airway hyperresponsiveness increases in females during adolescence, such that by adulthood it is both more common and more severe among adult women⁽¹⁾.

In this study, distribution of age group 42.2% of patients lie in age group 5-10 year 37.2% in age group 11-15 year, similar results were

demonstrated by Batool. A. Al-Haidary (2015) showed that both age groups (5-10) and ≥ 11 years were constitute the majority of asthmatic children (40% for each) (i.e. most asthmatic children were above the age of five years) (80%) ⁽¹⁰⁷⁾ , these figure agreement study in Portugal ⁽¹⁰⁹⁾ .

Regarded BMI in our result of study 55.5% of asthma patient were over weight or obese, similar result by Batool.

A. Al-Haidary in study done in Baghdad 2015 which reveal 52% of patient were over weight or obese ⁽¹⁰⁷⁾ , other study by Ripabelli 2013 in italia estimated high percent of over weight or obesity in asthmatics patient reach to 62% ⁽¹⁰⁸⁾ .

These result are agreement with previous international studies ⁽¹¹¹⁾ which indicated that overweight and obese children/adolescents are at greater risk of developing asthma. Interestingly, a national survey ⁽¹¹²⁾ reported an over weight in 34.0% of Italian children/adolescents, and an increased prevalence up to 41.3% in Molise region, where the 14.8% and 26.5% are obese or overweight, respectively.

Many studies referred to the role of obesity in many diseases and asthma is one these diseases which going well with the present study. Severe obesity further impairs airflow due to increased chest wall resistance ⁽¹⁰⁷⁾

It has been suggested that obesity could precede asthma, increase the clinical severity of disease and reduce quality of life of asthmatics . Possible mechanisms to explain the relation between asthma and high BMI may include airway inflammation, mechanical changes directly related to obesity, changes in airway hyperresponsiveness, physical activity and diet ⁽¹¹³⁾ . Moreover, Galassi et al. demonstrated that asthma prevalence in overweight children/adolescents was more frequently reported in areas of southern-Italy, where physical activity is less frequent, and unhealthy diet habits are more common ⁽¹¹⁴⁾.

According to above result Body-mass index (BMI) is positively associated with asthma symptoms in childhood, especially in high-income countries. Childhood obesity is increasing worldwide, and effective public health strategies to reduce the trend have the potential to reduce asthma risk⁽¹¹⁵⁾. Similar beneficial effects are likely to apply to adults, in whom a dose-response relation exists between bodyweight and incident asthma in both men and women. Sedentary behaviour, as measured by television viewing, is positively associated with asthma symptoms in childhood. Although sedentary behaviour is associated with other factors such as consumption of high-calorie foods and obesity, it is another risk factor which is becoming more prevalent in this digital age⁽¹¹⁵⁾.

Some have suggested that the relation between obesity and asthma may be causal, given the consistency, temporal association and dose-response relationships reported in the epidemiologic literature, but the mechanisms remain to be elucidated⁽¹⁾.

In our study 52% of patient had family history of asthma, 23% family history of allergic rhinitis and family history of eczema 11.3%. These results coincide with a study in Baghdad by Muhi K. Aljanabi 2010 which reported family history of asthma and allergic rhinitis in patients with asthma 50% , 27% respectively⁽¹⁰⁶⁾, study in Tikrit reported 53%⁽⁸⁶⁾.

Several studies have reported an association between childhood asthma and parental asthma. Rehana Majeed. showed 47% of asthmatic children to have family history of asthma⁽¹¹⁶⁾.

The present results confirm these findings. Maternal asthma is the main risk factor. Rathore AW mentioned 66% having positive family history along with 86% having allergic rhinitis and 15% having eczema⁽¹¹⁷⁾.

It is known that asthma is linked to both parental and sibling atopy and the strongest association is with maternal atopy . A maternal history of asthma and /or rhinitis is significant risk factor for late childhood onset asthma and recurrent wheezing throughout childhood⁽¹⁰⁶⁾ .

This study doesn't show relation between childhood asthma and eczema in the family which is compatible with Saleem study , but not with others like Albsa F et al⁽¹⁰⁶⁾

Another result of study there were 81.5% of patient recorded history of family member smoking in home, high prevalence of family member smoking also reported in study doing Baghdad by Muhi K. Aljanabi 2010 which reported 80.6%⁽¹⁰⁶⁾ , and by Batool. A. Al-Haidary 2015 recorded as low as 54%⁽¹⁰⁷⁾ ,in tikrit 2009 reported 41%⁽⁸⁶⁾ .

Postnatal exposure to environmental tobacco smoke, especially from maternal smoking, has been consistently associated with respiratory symptoms of wheezing. Exposure to environmental tobacco smoke also consistently worsens asthma symptoms and is a risk factor for severe asthma⁽¹⁾ .

The association between parental smoking and childhood asthma risk now extends beyond maternal smoking during pregnancy and throughout childhood to a separate and additive association with paternal smoking during childhood⁽¹¹⁸⁾ .

Active smoking in childhood is an important risk factor for asthma risk in adolescence. Real potential exists to reduce asthma risk through reducing tobacco use⁽¹¹⁸⁾ .

The risk of being passive smokers due to the presence of one or more smoking members in the child residence among asthmatic children was 4 times higher compared with controls⁽¹⁰⁶⁾ .

It is logical to think of cigarette smoke as irritant to the respiratory passages , provoking asthma in a genetically predisposed child. Reducing the prevalence of smoking in the adult population , and

particularly in woman of childbearing age , would significantly reduce the prevalence of wheezing in young children⁽¹⁰⁶⁾ .

From above result asthma is one of the diseases showing the largest burdens due to environmental tobacco smoke, results globally showed that living with smokers did not constitute a risk factor for asthma prevalence, which might have been due to the tendency of adults to avoid smoking in the presence of young children⁽¹⁰⁹⁾ .In fact, Yeh et al.concluded that parental smoking was not related to asthma development in early childhood was having at least one parent with asthma, confirming asthma family history as an evident risk factor for infants and pre-schoolers⁽¹¹⁹⁾ .

However, other study results did not show any relation with both tobacco-smoke exposure, which is generally associated by at least 20% with airway inflammation and an increased incidence of early/persistent wheezing and asthma in children/adolescents⁽¹²⁰⁾ .

Exposure to tobacco is a risk factor that is clearly associated with the development of asthma in the first few years of life, by favouring persistent sensitization⁽¹²⁰⁾ .This risk is higher in case of maternal smoking, especially if the mother smokes during pregnancy. Waheed *et al.* mentioned 36.59% asthmatic as having cigarette smoke exposure. Study In Pakistan 2008 that particular risk factor was found to play a minor role⁽¹²⁰⁾ .The association between asthma and paternal or maternal smoking considered separately was found weak. By taking into account all the possible combinations corresponding to 'parental smoking⁽¹²⁰⁾

when studying the residency of the patients, we found that those who are residing in the urban area were having higher rate of asthma (73%) compared to those in rural area (27%), these result agreement with study by Waqar Al –Kubaisy 2012 in baghdad which reported 80% residence in urban⁽¹⁸⁾ and study by Muhi K. Aljanabi 2010 recorded 75% living in urban⁽¹⁰⁶⁾

In china study by Zhu et al.also registered lower asthma prevalence in Chinese children aged 5years old or younger from rural areas than in those from urban areas of Beijing⁽¹²¹⁾

In Tennessee (USA), Valet et al.studied asthma prevalence in children under 6 years old found it higher in rural context than in urban ⁽¹²²⁾ .

The prevalence of asthma increases with urbanization because of various infrastructure, socioeconomic and lifestyle factors, which vary based on the demographic transition stage of the community. Understanding the importance and interplay of these factors is necessary to plan intervention strategies⁽¹²³⁾ .

Rural dwelling children seem to have much less asthma than urban dwelling children . Perhaps there is reduced atopy in farming families but there are other explanations such as greater exposure to bacterial infection or differences in diet and intestinal microflora in farming population⁽¹⁰⁶⁾ .

This finding could be attributed to exposure to ambient air pollution. In addition to changes in life style and building, with increasing indoor allergens exposure like house dust mite, pets, plants andchemical agents in the indoor environment⁽¹²¹⁾ .

Environmental factors are increasingly being implicated in causation of asthma. In Africa, asthma is more common in children who live in urban areas than in those who live in rural areas ⁽¹²⁰⁾ .The present results are consistent with this finding. In contrast to what is observed in rural areas, wheezing and exercise-induced bronchospasm are closely linked to atopic sensitization in urban zones, as in Western countries⁽¹²⁴⁾ . Children who live on farms are protected against the development of asthma and atopic diseases, probably by bacterial endotoxins. The role of place of residence and, therefore, lifestyle is illustrated by the doubling or tripling of the prevalence of respiratory symptoms in children, who immigrated to Australia 5 to 14 years ago from countries in which the prevalence of asthma was low⁽¹¹⁶⁾ .

Although several studies have demonstrated a lower risk of development of atopy and asthma with exposure to farm animals in early life, the findings of studies of the influence of exposure to domestic cats and dogs have been inconsistent ⁽¹¹¹⁾. In some studies, exposure to cats was associated with a greater risk of allergic sensitization, whereas other studies showed a lower risk. Exposure to dogs may be protective not only against the development of specific sensitization to dog allergen but also against other sensitization (e.g., to house dust mites) and asthma.

Other studies of exposure to dogs have suggested that protection against wheezing may be mediated by high levels of endotoxin ⁽¹⁾.

Study that observed associations between exposure to cats and dogs and childhood asthma are consistent with previous study by Salam et al., 2004 ⁽⁸⁷⁾ but contrast with other studies which found pets were protective (Remes et al., 2001) ⁽¹²⁵⁾.

However, it is difficult to explore the association between exposure to pets and childhood asthma, even in prospective studies, because of issues of temporality and possible confounders associated with keeping pets Salam et al., 2004 ⁽⁸⁷⁾.

Further prospective studies are required to discrepancy between studies may be due to differences in farming practice, crops, lifestyle and other "rural" factors that differ between this Iraqi environment and that in Europe and other regions from which previous reports originated ⁽¹²⁶⁾.

A further difference in Iraq may be the proximity of stables to the home and time spent in stables in this population stables were mostly attached to the family home and sometimes located within the house ⁽⁸⁶⁾.

Chapter Five

Conclusions

&

Recommendations

Conclusion :

The study concludes specific risk factors being associated with asthma mostly positive family history of asthma , passive smoking , high body mass index, Recurrent chest infection.

Recommendation:

1. Avoidance of smoking in the houses, and reduce out door environmental pollution in urban region.
- 2.Active cooperation with the media to give information about asthma predisposing factors and its management in the community is one of the corner stone in the management of asthma
3. Medical records should be fill properly, in ward and center, to assess prevalence of disease in community
- 4.More Research about Risk Factor for asthma .

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questionnaire

1. Name:

2. Age :

3. Gender :

Male

Female

4. Region

Rural

Urban

5. History Of eczma

Yes

No

6. Family History Of eczma

Yes

No

7. Family History Of Smoking

Yes

No

8. Presence Of Pet

Yes

No

9. History Of recurrent Chest Infection :

Yes

No

10. History Of allergy rhinitis :

Yes

No

11. Body Weight .

12. Height .

13. Body Mass index

14. Family History of Asthma

15. Type of delivery

NVD

CS

1. الاسم :
2. العمر :
3. الجنس :
- ذكر : انثى :
4. السكن :
- الريف: المركز:
5. تاريخ مرضي بالأكزيما :
نعم : لا:
6. تاريخ مرضي بالأكزيما في الاسرة :
نعم: لا :
7. وجود مدخنين في العائلة :
نعم: لا:
8. وجود حيوانات أليفة في المنزل :
نعم: لا :
9. وجود التهابات صدر متكررة:
نعم: لا :
10. وجود التهاب انفية متكررة:
نعم: لا :
11. وزن الجسم :
12. الطول :
13. كتلة الجسم :
14. تاريخ المرض عند العائلة :
15. نوع الولادة
ولادة طبيعية قيصرية

الخلاصة

الخلفية:

الربو القصبي :

هو مرض التهابي مُزمن شائع، يُصيب الشعب الهوائية في الرئتين. يَتميز بحدوثِ أعراضٍ مُتغيرةٍ مُتكررة، مع حدوثِ تشنجٍ قصبي وانسدادٍ في المسلك الهوائي قابلٍ للانعكاس، كما تشمل الأعراض نوباتٍ من الأزيز والسعال وضيق النفس والصدر، وقد تحدثُ هذه النوبات عدةً مراتٍ في اليوم أو في الأسبوع، وقد تُزدادُ سوءاً في الليل .

الهدف:

تهدف الدراسة لإلقاء الضوء على عوامل الخطر المحتملة للربو القصبي في مرحلة الطفولة

الطرائق :

دراسة الحالات والشواهد : (CASE Control)

دراسة مقطعية ، تسجيل مرضى الأطفال المصابين بالربو الذين يحضرون مركز الحساسية والربو في ديوانيا ، المستشفى التعليمي ، جمع البيانات تتبع الاستبيان وهو تعديل من الدراسة الدولية للربو والحساسية في الطفولة، تم تحليل البيانات عن طريق تطبيق SPSS برنامج إصدار 20 لغرض تحليل البيانات .

النتائج:

سبعة وتسعين من حالات المصابين بالربو الذين تتراوح أعمارهم بين 1-15 سنة ، متوسط العمر 8.5 \pm 3.7 سنة ، نسبة الذكور إلى الإناث 1: 1.4 ، أربعة وثلاثون في المائة كانوا يعانون من زيادة الوزن ، 21.8 % كانوا يعانون من السمنة. تكشف النتائج أن 52% من الأطفال المصابين بالربو لديهم تاريخ عائلي من الربو ، في حين أن 23% منهم لديهم تاريخ عائلي من التهاب الأنف التحسسي و 11.3% منهم لديهم تاريخ عائلي من الأكزيما ، 96% لديهم تاريخ تدخين أفراد العائلة.

الاستنتاج :

تخلص الدراسة إلى وجود بعض عوامل الخطر المرتبطة بالربو ، ومعظمها تاريخ عائلي إيجابي للربو ، وتدخين الآباء والأمهات ، والإقامة الحضرية ، وارتفاع مؤشر كتلة الجسم.

عوامل الخطر:

تاريخ الأسرة ، السمنة ، زيادة الوزن ، التدخين.



وزارة التعليم العالي والبحث العلمي
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الحساسية والربو في مستشفى الديوانية التعليمي في محافظة الديوانية - العراق
2018

رسالة مقدمة إلى
مجلس كلية الطب/ في جامعة القادسية
وهي كجزء من متطلبات نيل درجة الدبلوم العالي المعادل للماجستير في طب الأسرة

مقدمة من قبل
غفران هادي حسن
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