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ORIGINAL ARTICLE

Phagocytic Activity and IL-1 Alpha Levels for Asthma Patients

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KEYWORDS

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ABSTRACT: Asthma is a lung disease that lasts an extended time. It reasons inflammation of your airways and thin, and it makes it tough to respire. Asthma that is severe can cause trouble talking or being active. You might hear your specialist call it a long-lasting illness of the lungs Asthma is also referred to as "bronchial asthma." Materials and Methods: Total 40 samples collected from asthma patients, 40 healthy controls. Tow milliliter of venous blood through vein puncture from each one from cases and control mcluded in this work. Result: A highly significant correlation was found between age and Interlukin 1 for the cases, <0.01. No significant correlation was found between sex and the IL1 for the cases P>0.05.

INTRODUCTION

Asthma is a serious illness that affects around 25 million people in the United States and accounts for almost 2 million spare area visits each year. [1], you can live comfortably if you bargain. You might have to go to the ER or remain in the hospital more frequently if you don't have it, which can have an impact on your daily life. Asthma is characterized by inflammation of the bronchial passages, as well as the presence of sticky secretions within the tubes. [2]. When the airways tauten, inflame, or seal with mucus, people with asthma have signs [3].

A blockage in the airway the groups of muscle encircling your airways are unaffected while you breathe normally, and air flows freely. However, when you have asthma, the muscles constrict. Inflammation makes it more difficult for air to move through. [4] .Asthma reasons enflamed, swollen bronchial tubes in the lungs, which can cause harm to the lungs. Taking care of this is critical for long-term asthma treatment. [5, 6] .Irritability of the airways, when people with asthma come into contact with even minor stimuli, their airways tend to respond and narrow. Symptoms of these issues may include: Coughing, particularly at evening or in the morning, is a common symptom. When you breathe, you'll hear a whistling sound called wheezing. Breathing problems A feeling of tension, pain, or pressure in your chest, as well as Breathing problems are making it difficult for you to sleep [7].

Several people with asthma can go for lengthy periods of time without experiencing any symptoms [8]. Others might have difficulties all day. In adding, some persons may have asthma only through exercise or through viral infections similar colds [9].

Phagocytosis

Macrophages produce a change of cytokines and intermediaries that are vital for immune and inflammatory responses in their response with external agents [10].

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Macrophages are also important for the elimination of particulates and bacteria from the airways [11].

IL-1α

IL1 and IL1 are potent proinflammatory cytokines that regulate a variety of physical systems by binding and gesturing to the same IL1 receptor type 1 (IL1R1) receptor) [12]. Using IL1R1–/– rats as models of allergic asthma, we explored the role of IL1 in pulmonary immune responses. [13]. In a classical of mild asthma, based on constant sensitization of rats with low doses of ovalbumin in the absenteeism of any adjuvant and several intranasal challenges, the pulmonic eosinophilic inflammation and goblet cell hyperplasia were powerfully reduced in IL-1R1–/– as compared to control BALB/c mice [14].

Because of the complex system of agonists and rivals, precise control of IL1 biological activity is thought to be physiologically significant [15].

Temperature, lack of hunger, severe phase protein production, chemokine making, up regulation of adhesion particles, vasodilation, augmented hematopoiesis, and the announcement of medium metalloproteinases and development issues are all caused by IL1 and/or IL1[16]. IL1 stimulates T cell and NK cell activation and cytokine excretion in the immune system [17]. IL1 has been shown to increase the propagation of Th2 cells 16–18 as well as specific antibody responses [18].

MATERIALS AND METHODS

Total 40 samples collected from asthma patients, 40 from healthy control. Tow milliliter of venous blood through vein puncture from each one from cases and control included in this work, the blood has been transferred in to EDTA tubes. Volume of 0.5 ml of blood was pipetted in plain tube.

Equal volume of 0.2 NBT solutions with phosphate buffered saline. The plain tubes were incubated at 37°C for 15 mints in water bath and 15 mints at room temperature. Blood smear from the mixture stained by Gemza stain. Calculate 100 neutrophils randomly and the positive with Formosan phenomena appear with blue black granules out of 100 cells, from January 2019 – until January 2020. With age range (19 - 49) from AL- zahraa, AL- karama teaching hospital, and private lab.

The IL-1 can diagnostic by ELISA (Kit IL-1 chorus)

RESULTS

Table 1. Correlation between the Sex of the patient and the phagocytic activity of the cells

Sample Type			Sex		Total
			Male	Female	
Controls	Phagocytic activity	30 or less	14	25	39
		70 or more	1	0	1
	Total		15	25	40
Cases	Phagocytic activity	30 or less	20	19	39
		31-50	1	0	1
	Total		21	19	40
	Total		36	44	80

No significant correlation found between sex and the phagocytic activity, P>0.05 for the controls and the cases.

Table 2. Correlation between the age of the patients and the phagocytic activity of the cells.

Sample Type			Age			Total
			19 and less	20-29	40-49	
Controls	Phagocytic activity	30 or less	3	36		39
		70 or more	0	1		1
	Total		3	37		40
Cases	Phagocytic activity	30 or less	3	31	5	39
		31-50	1	0	0	1
	Total		4	31	5	40
	Total		7	68	5	80

No significant correlation found between sex and the phagocytic activity, P>0.05for the controls, while the correlation was highly significant for the cases, P<0.01.

Table 3. Correlation between the Smoking status of the Patients and the phagocytic activity of the cells

Sample Type			Smoking Status		Total
			Non-smokers	Smokers	
Controls	Phagocytic activity	30 or less	32	7	39
		70 or more	0	1	1
	Total		32	8	40
Cases	Phagocytic activity	30 or less	28	11	39
		31-50	0	1	1
	Total		28	12	40
	Total		60	20	80

No significant correlation was found between smoking status of patients and the phagocytic activity of the cases, P>0.05.

Table 4. Correlation between Interlukin 1 and age of the participated patients.

Sample Type			IL-1 amp					Total
			6-10	11-15	16-20	21-25	26-30	
Controls	Age	19 and less	1	1	1	0		3
		20-29	13	15	8	1		37
	Total		14	16	9	1		40
Cases	Age	19 and less		1	2	0	1	4
		20-29		2	12	11	6	31
		40-49		1	1	3	0	5
	Total			4	15	14	7	40

No significant correlation was found between age and Interlukin 1 for either case or control. P>0.05

Table 5. Correlation between Interlukin 1 and sex of the participated patients.

Sample Type			IL-1 amp					Total
			6-10	11-15	16-20	21-25	26-30	
Controls	Sex	Male	1	6	7	1		15
		Female	13	10	2	0		25
	Total		14	16	9	1		40
Cases	Sex	Male		3	7	8	3	21
		Female		1	8	6	4	19
	Total			4	15	14	7	40

A highly significant correlation was found between age and Interlukin 1 for the cases, <0.01. No significant correlation was found between sex and the IL1 for the cases P>0.05

Phagocytic activity * IL-1 amp * Sample Type Cross tabulation

Table 6. Correlation between Interlukin 1 and phagocytic activity of the cells of the participated patients.

Sample Type			IL-1 amp					Total
			6-10	11-15	16-20	21-25	26-30	
Controls	Phagocytic activity	30 or less	14	16	8	1		39
		70 or more	0	0	1	0		1
	Total		14	16	9	1		40
Cases	Phagocytic activity	30 or less		4	14	14	7	39
		31-50		0	1	0	0	1
	Total			4	15	14	7	40

No significant correlation was found between age and Interlukin 1 for either sex and control. P>0.05

Table 7. Correlation between interlukin 1 in samples and controls

IL-1 amp	Sample Type	
	Controls	**Cases**
6-10	14	0
11-15	16	4
16-20	9	15
21-25	1	14
26-30	0	7
Total	40	40

A highly significant correlation was found between theIL1 and cases and control groups P<0.01

Table 8. Correlation between Phagocytic activity in samples and controls.

Phagocytic activity	Sample Type	
	Controls	**Cases**
30 or less	39	39
31-50	0	1
70 or more	1	0
Total	40	40

No signifcant correlation was found between phagocytic activity and the type of the sample (cases or controls). P>0.05.

DISCUSSION

Asthma is a varied chronic inflammatory sickness of the lungs with numerous phenotypes that are all categorized by airway irritation, revocable airflow obstruction, airway remodeling, and bronchial hyper responsiveness [19].

In the current study, No significant correlation found between sex and the phagocytic activity, P>0.05 for the controls and the cases, The current study was in consistency with other studies which showed no significant correlation found between sex and the phagocytic activity between control and patients [20]. [21] Robison, Albert et al was showed, no correlation between sex and the phagocytic in in healthy but found in patients, that consistency with other studies which showed no No significant correlation found between sex and the phagocytic activity, P>0.05for the controls, while the correlation was highly significant for the cases, P<0.01. In the presented study, the comparisons between patients asthma and control in age, that appear No significant correlation was found between age and Interlukin-1 for either case or control. P>0.05 this agree with previous study of Robison, Albert et al [21]. Correlation between Interlukin 1 and phagocytic activity of the cells of the participated patients. [22] and [23] correspond with the present study No significant correlation was found between phagocytic and Interlukin-1 for either case and control. P>0.05. because originating from the detail that many of these proteins are made by leukocytes and performance on leukocytes"[24]. The term

is rather of a artifact; it has since been originate that interleukins are created by a varied diversity of body cells, to change the several diverse terms used by different study groups to designate interleukin 1 (lymphocyte activating factor, mitogenic protein, T-cell changing factor III, B-cell triggering factor, B-cell differentiation issue [25]. Interleukin-1 alpha and interleukin-1 beta (IL1 alpha and IL1 beta) are cytokines that donate in the regulation of immune responses, inflammatory responses, and hematopoiesis [26]. Two classes of IL-1 receptor, all with three extracellular immunoglobulin (Ig)-like domains, imperfect system resemblance (28%) and dissimilar pharmacological characteristics have been cloned from mouse and human cell appearances: these have been termed type I and type II receptors M.[6].

CONCLUSIONS

In patients with asthma, there is correlation between the age of the patients and the phagocytic activity of the cells, there is also high significant correlation between age and IL-1, also found correlation between sex and phagocytic activity of the cells.

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ETHICAL CONSIDERATION

The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq.

Conflict of interest

The author declares no Conflict of interest

Source of finding

Self finding

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