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BLOOD FACTORS AND IMMUNE STUDY OF HUMAN ALLERGIC PATIENTS CAUSED BY MOSQUITO BITES

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ABSTRACT

The study included measuring the components of human blood in individuals aged 25-35 years who had been bitten by female Culex pipenes mosquitoes. The study demonstrated the negative impact of these blood components on the effects of the bites, and also showed a clear effect of these bites on the immune systemg the components of human blood in individuals aged 25-35 years who had been bitten by female mosquitoes.

INTRODUCTION

Mosquitoes are some of the most intensely studied creatures on the planet and their role in disease transmission and nuisance biting makes them worthy of such attention. There are over 3,500 species of mosquito on earth, being found everywhere except in Antarctica (Healy and Copland 1995). Yet, from this great diversity, only a small handful can carry the pathogens that cause human disease and it is these species which have been studied most thoroughly. For the purposes of public health, this substantial body of research has helped us to understand mosquito-borne disease transmission and informed the development of mosquito and disease (Lefèvre, et al. 2010)., A mosquito's reliance on blood feeding is the characteristic that allows mosquitoes to transmit pathogens from infected to healthy hosts.

Pathogens are taken up by mosquitoes incidentally when the latter are imbibing a blood meal, these viruses and parasites, which accumulate in the mosquito's salivary glands, are then injected into new hosts along with saliva (Thomas et al., 2018), Mosquitoes allergy it occurs as a result of the interaction of proteins in mosquitoes saliva ,causing a large red spot on the skin, which swells and is accompanied by itching, occur at the site of the mosquitoes bite. Most bites occur at either dusk or dawn, when mosquitoes are most active(Choumet, V. et al. 2019).

A female mosquito locks onto her victim using a combination of scent, exhaled carbon dioxide, and chemicals in the person's sweat. When she finds a suitable meal, she lands on an area of exposed skin and inserts her proboscis to draw the victim's blood. The proboscis is the long, flexible tube extruding from her head, the victim's blood. The proboscis is the long, flexible tube extruding from her head, and it's capable of piercing human skin. The common symptoms — a red bump and itching caused by human body immune system to proteins in the mosquitoes saliva, this reaction known as Skeeter syndrome (Becker, N. et al. 2010.)

THE METHODS

Sample Collection

Blood samples were collected from people infected with mosquito bites (male and female) during the period from November 2022 to December 2022. The ages of the infected ranged between 20-24, as is the case with the ages of the control. Common symptom of an infected included; A puffy and reddish bump appearing, A hard, itchy, reddish-brown bump, or multiple bumps, small blisters instead of hard bumps, dark spots that look like bruises.

Where samples of the injured were collected in the specialized Agadir laboratory for pathological analyzes located in Qurna, north of Basra Governorate, where 2 cc was drawn by the gel tube and EDTA tube, and directly a CBC analysis of the samples was performed, and part of their samples (their blood) was taken in a special tube for the purpose of conducting immunological analyzes (IgE)

In another laboratory. As for samples of healthy people at the University of Basra / College of Science, 2 cc was also drawn from the gel tube and EDTA tube. The EDTA tube was transferred to the specialized Agadir laboratory for CBC analysis, while the gel tube was transferred to another Medical Laboratory located in the in Basra for an IGE analysis (* Note that the required analyzes were done on the same day in order to preserve the samples from damage).

Samples were collected by means of a disposable syringe with all the tools necessary for withdrawing from cotton, turquoise, sterilizer and plaster.

THE RESULTS

The results of the study showed that there are changes in human blood factors, as well as the immune factor, after exposure to mosquito bites It was proven by analyzing the blood of infected people who were exposed to mosquito bites, the results are shown in Table 1.

Through this table, we note that the total number of WBC increased in all infected persons where the range 6.46_9.83 while the reference 4.00_10.00. WBC mid 8.23 This is a normal value due to the entry of a foreign body into the human body We also observe a rise in lymphocyte in all infected persons because of its activity Where the range 3.28_8.82 while the reference 0.60_4.10._ The rise in RBC is directly proportional to the rise in HB.

Table 1: Hematological factors Tests.

Items	Result	Control	Reference
WBC Range Mid	6.46_9.83 8.23	3.94_9.00 6.037	4.00_10.00
LYM Range Mid	3.28_8.82 5.467		0.60_4.10
GRA Range Mid	3.76_5.66 4.722		2.00_7.80
RBC Range Mid	4.21_5.05 4.55	5.25_5.58 5.452	3.80_5.80
PLT Range Mid	12.6_224 148.9	156_251 211.75	100_300
HB Range Mid	10.5_12.5 11.75	13.8_16.5 15.125	11.0_16.5%

Table 2: Immunological factor test.

Item	Result	Control	Reference
IGE Range Mid	1_154 62.12	13.8_19.1 50.5	0.2_423

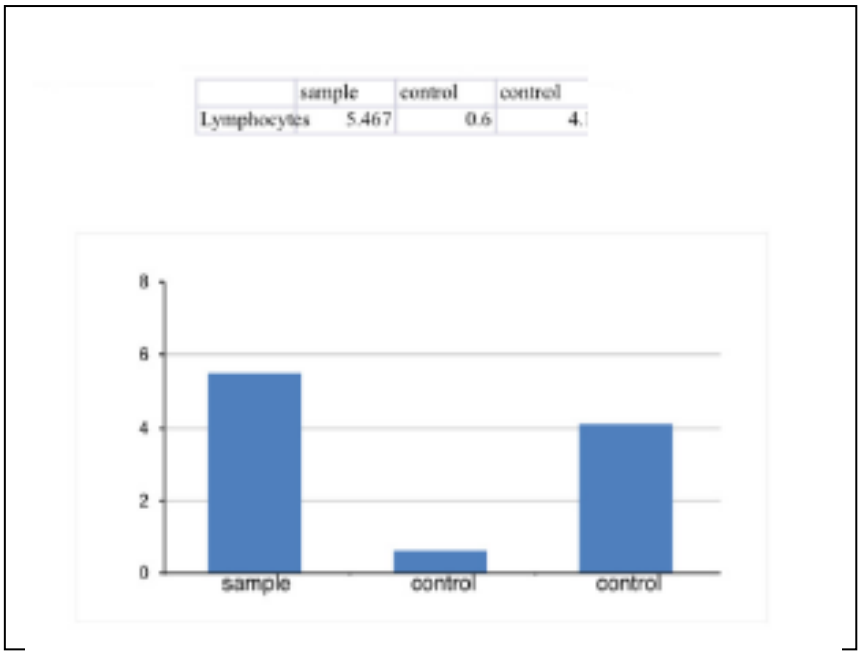

Figure 1: Blood human Lymphocyte.

	sample	control
WBC	8.23	6.037

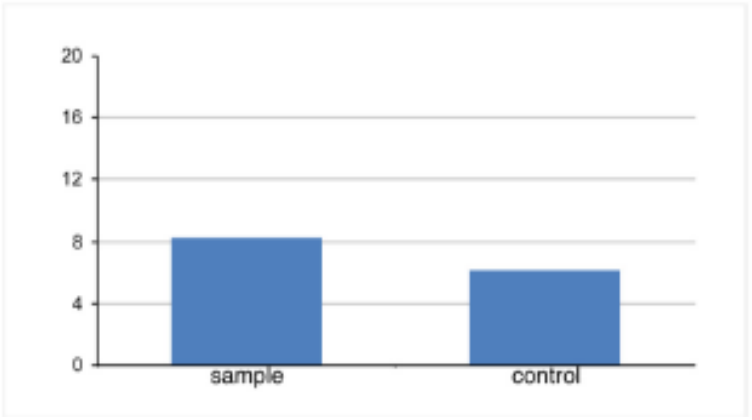

Figure 2: Blood human WBC.

	sample	control	control
Granulocyte	4.722	2	7.8

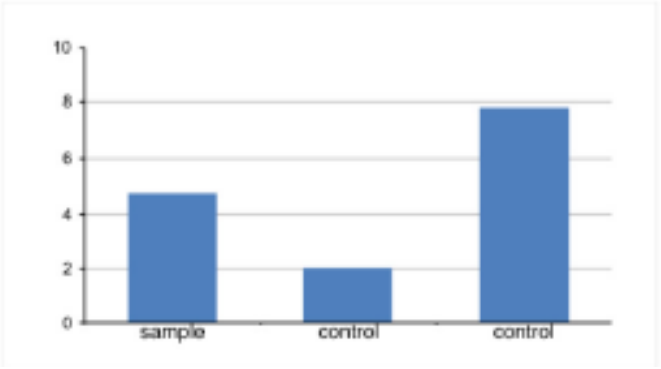

Figure 3: Blood human Granulocyte.

	sample	control
Hb	11.75	15.125

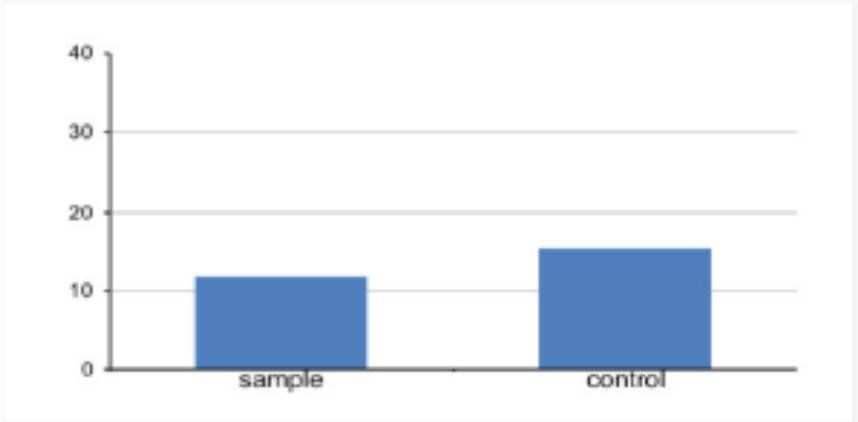

Figure 4: Blood human Hb.

	sample	control
RBC	4.55	5.452

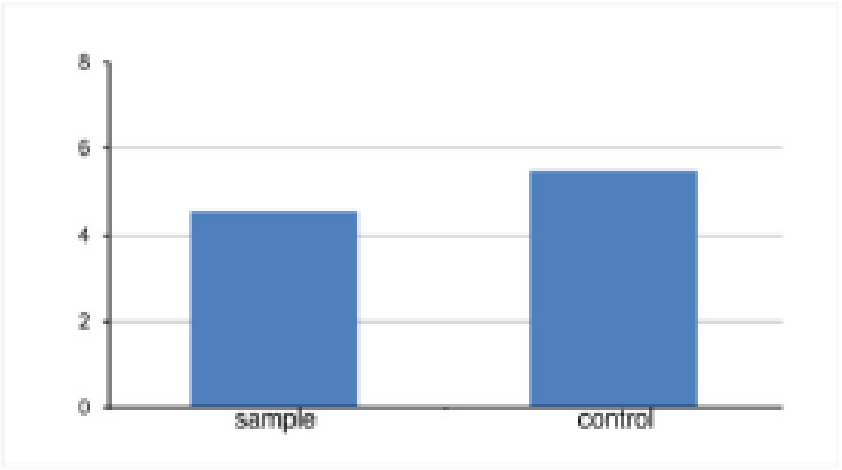

Figure 5: Blood human RBC.

	sample	control
igE	62.12	50.5

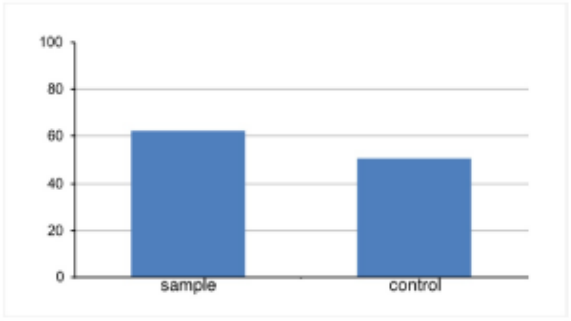

Figure 6: Blood human IgE.

	sample	control
Platelet	148.9	211.75

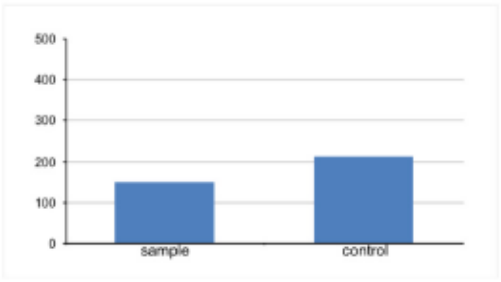

Figure 7: Blood human Platelets.

DISCUSSION

Mosquitoes spread widely in the environments of Iraq and the Middle East are delayed, and when saliva is injected into the puncture site in order to make the blood a liquid, it is characterized by flowing into the oral cavity through the saliva channel, and the noncoagulation of the blood for the continuity of its flow. Saliva may be considered an enzymatic protein substance., which interacts with immune blood proteins that produce allergies, so the white blood cells, especially the various ones, are affected only by a total or varied number Mosquito bites are small, raised bumps on the skin that come from a female mosquito feeding on human blood. Mosquitoes are small, flying insects known as vectors. Vectors often carry infection through blood.

Mosquito bites are small, raised bumps on the skin that come from a female mosquito feeding on human blood(Harbach, R.E., 1988). When a mosquito bites, its proboscis penetrates the epidermis and then the dermis in search of a blood capillary. In addition to the physical aggression of the insertion, it is the saliva injected during the operation that triggers a reaction in our skin. It contains a complex mixture of proteins, which is recognized by the skin's immune system as a foreign agent. The reaction is almost immediate. Immune cells, the "mast cells", are the first to react. They secrete histamine, an inflammatory mediator that increases the diameter and permeability of blood vessels, thus causing edema: this is the famous mosquito pimple. It is also histamine that, by stimulating nerve fibers, causes itching and the irrepressible urge to scratch (Hantos, 2014). It is important to note that histamine is not only involved in mosquito bites. This molecule also plays an important role in allergic reactions, particularly in reaction to pollen, latex or certain foods. It is thus responsible for allergic symptoms such as runny nose, tears, redness on the skin, itching... Which can, in very rare cases, have certain consequences after a on the skin, itching... Which can, in very rare cases, have certain consequences after mosquito bite In addition to the trcmendous impact of

mosquitoes on human health as vectors of disease pathogens (Manoucheri, 19805).

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