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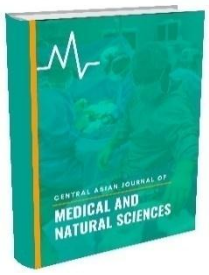

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Effect of Papilloma Virus on Some Immunological and Molecular Traits of Infected Women in Al-Diwaniyah Governorate

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Abstract: The study was distracted by 70 samples were infected by Papilloma Virus, to study the effect of Papilloma Virus on some immune and molecular traits of infected people in Al-Qadisiyah Governorate, at 16 October 2022. The results indicated that the percentage of infection with the virus was 33.33%, compared to the non-infected, which amounted to 66.67%. The number of infected people in the urban was higher than in the rural. The age group 17-22 had the highest infection rate, which amounted to 46.15%, the lowest infection rate was in the age group 37-50, which amounted to 29.07%. The level of IL-10 and IL-1β was high in the age groups 17-26 and 27-36 years old, while the IgM was higher in the age group 37-50 years. The levels of IL-10, IL-1β and IgM were higher in the urban than in the rural. The C/T hybrid genotype has the lowest infection rate, compared to pure genotypes (C/C and T/T). There were no significant differences between the C and T alleles in the percentage of HIV infection.

Key words: Papilloma Virus, immune, molecular, infected women, Al-Diwaniyah Governorate.

Introduction:

Human papillomavirus (HPV), it is a sexually transmited virus., there are about 100 types of human papilloma virus, affecting different parts of the body. About 30 types of HPV can affect the genitals, there are about 14 types that are considered high risk, may lead to cervical cancer (Lewis et al., 2021).

The human papillomavirus (HPV) is responsible for a common infection, it is sexually transmitted and bears the same name as the virus, most sexually active people will contract this infection at some point (Schiffman *et al*., 2016).

It is estimated that 80% of women will contract at least one type of HPV during their lifetime, many women infected with HPV do not show any symptoms. The infection goes away without causing any health problems, some women may notice genital warts or bumps appearing inside the vagina, in or around the anus, or on the cervix or vulva (Forman et al., 2012).

Some strains of HPV can cause cervical, vaginal, anal or throat cancer, regular screening can help detect changes associated with cervical cancer in women, DNA tests on cervical cells can detect strains of HPV associated with cancers of the reproductive organs (Wang *et al*., 2018).

Being infected with HPV does not reduce the chances of pregnancy, however, pregnant women infected with the virus should delay treatment until after childbirth, HPV infection can cause complications in some cases (Ardekani *et al*., 2022).

Hormonal changes that occur during pregnancy may lead to the growth of genital warts during pregnancy, in some cases, these warts may bleed. If genital warts are widespread, it may make normal childbirth difficult, when genital warts block the birth canal, a caesarean section may be required (Niyibizi *et al*., 2020).

In rare cases, a mother with HPV can pass the virus on to her baby during childbirth, when this happens, the baby may develop a condition called recurrent respiratory papillomatosis, gets HPV-related warts inside the throat or airways (Weyn et al., 2011).

This study aimed to determine the effect of Papilloma Virus on some immunological and molecular traits of infected women in Al-Diwaniyah Governorate.

Materials and Methods:

The study was distracted by 70 samples were infected by *papilloma virus* The study group include, the revisions of a group of woman to The governmental hospitals of Al-Diwaniyah governorate, the hospital of the women, the newly born and the educational hospital of Al-Diwaniyah. As samples were collected the cervicl fluids of women, suffer from cervical secretions, their age ranged from 15-55 years, at 16 October 2022.

A drop of salt solution on clean and sterilized class slide and then removed by turning the stick on the slid and mixed well with the salt solution and the put the cover-slide and measured under the microscope with 40x power to reveal out of the pus cells , the epithelial cells and the cells of the virus(Hugerth *et al*., 2018).

The process of collection samples for the above mentioned period were 5ml of venous blood are draw up from both of infected and control woman by using special syringe, the blood sample put in test-tube some in EDTA-Tube to don’t clot and some in gel tube in purpose of blood clotting at room temperature (25-20 C) for 5 min. the separates the serum by the centrifuge device at speed 3000 rpm , then group the serum into five sections each one of them is used for single test of the laboratorial equipment’s of the immunological titer , the put it into Eppendorf tubes of 0.5 ml size and preserved the samples frozen in -20 C , until the the next laboratorial testes is done.

Enzyme Linked Immunosorbent Assay IGM and measuring the level of cellular movements IL-1B and IL-10, as well as the genotypes were studied.

Results and Discussions

Infection Percentage of Papilloma Virus in Women with Cervical Cancer

The present study reported among 210 women with cervical cancer, the incidence of Papilloma virus was 70 (33.33%), while 140 (66.67%) of women had not infection with Papilloma virus (Fig.1).

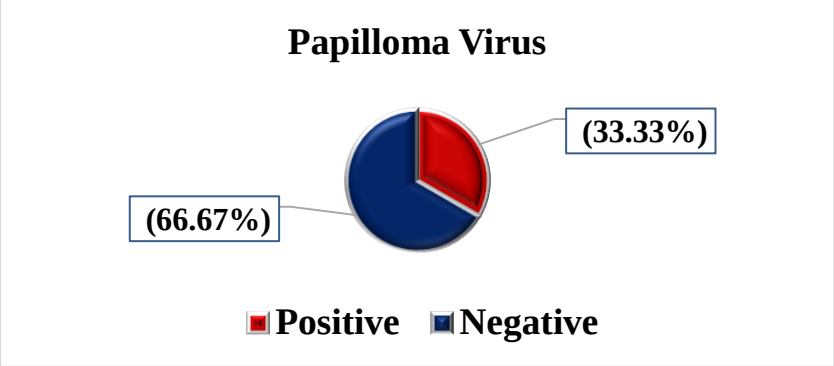

Figure 1. Infection percentage of Papilloma Virus among cervical cancer women.

Distribution of Cervical Cancer Women According to Habitation

This study recorded a non-significant difference at p. value < 0.05 according to habitation, was noted the rural women with cervical cancer scored 59.52% among population among them 28.8% infected with Papilloma virus, in contrast urban women scored 40.48% among population among them 40.0% infected with Papilloma virus (Table 1).

Table 1. Papilloma virus among women according to habitation.

Papilloma Virus	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Rural	36	28.80	89	71.20	125	59.52
Urban	34	40.00	51	60.0	85	40.48
Total	70	33.33	140	66.67	210	100
$CalX^2 = 2.667$ $TabX^2 = 3.84$ DF= 1 P. value 0.102						

Distribution of Cervical Cancer Women According to Age Groups

This study recorded a significant difference at p. value < 0.05 according to age groups, was noted the third age group of women with cervical cancer scored 40.95% among population among them 29.07% infected with Papilloma virus, in contrast the first age group of women scored 18.57% among population among them 46.15% infected with Papilloma virus (Table 2).

Table 2. Papilloma virus among women according to age group.

Papilloma Virus	Positive		Negative		Total	
	No.	%	No.	%	No.	%
17-26 years	18	46.15	21	53.85	39	18.57
27-36 years	27	31.76	58	68.24	85	40.48
37-50 years	25	29.07	61	70.93	86	40.95
Total	70	33.33	140	66.67	210	100
$CalX^2 = 7.176$ $TabX^2 = 5.99$ DF= 2 P. value 0.028						

Estimation of IL-10, IL-1β and IgM in Papilloma Infected Patients According to Age Groups

The current results recorded a non-significant difference at p. value < 0.05, in for level of all IL-10, IL-1β and IgM, the study noted IL-10 and IL-1β increased non-significant in first age group of patients infected with Papilloma virus, while IgM increased non-significant in second age group, on other hand all immune parameters decreased non-significantly in third age group (Table 3).

Table 3. Level of IL-10, IL-1β and IgM in Papilloma infected patients according to age groups.

Interleukins Age Groups	Cases No.	IL-10	IL-1β	IgM
		Mean ± SD		
17-26 years	18	61.74 ± 21.6	24.62 ± 8.55	15.79 ± 4.51
27-36 years	27	60.77 ± 19.6	23.21 ± 7.90	16.14 ± 4.91
37-50 years	15	58.25 ± 18.9	21.30 ± 5.63	14.50 ± 5.50
p. value		0.874	0.237	0.604
LSD		Non-Significant		

Estimation of IL-10, IL-1β and IgM in Papilloma Infected Patients According to Habitation

The current results recorded a non-significant difference at p. value < 0.05, in for level of all IL-10, IL-1β and IgM, the study noted IL-10 and IL-1β increased non-significant in urban patients than rural patients infected with Papilloma virus, while IgM increased non-significant in urban patients than rural patients infected with Papilloma (Table 4)..

Table 4. Level of IL-10, IL-1β and IgM in Papilloma infected patients according to habitation.

Immune Parameters	Rural No. 31	Urban No. 29	p. value
	Mean ± SD		
IL-10	59.09 ± 19.9	62.09 ± 20.2	0.566
IL-1β	22.03 ± 7.76	22.47 ± 7.64	0.436
IgM	15.56 ± 5.10	15.70 ± 4.71	0.917

Genotype and Allele Frequency of IL-1 β rs 16944 haplotypes in Papilloma virus Infected Patients and Control

The current study recorded a significant increase the frequencies of C/C and genotype in Papilloma infected patients compared with control group. In contrast the T/T genotype frequency was decreased in Papilloma infected patients compared with control group, also, noted C/T frequency was equal in patents and control, the results also noted a significant difference in frequencies of C and T allele. Also, recorded by Odds ratio the frequency of allele increased significantly in patients than control group at p. value < 0.05 (Table 5).

Table 5. Genotype and allele frequency of IL-1β rs 16944 haplotypes in Papilloma patients

Papilloma Gene	Genotype	Patients No. 10		Control No. 5		$CalX^2$ p. value	OR 95%CI
		No.	%	No.	%		
IL-1β rs 16944	C/C	4	40	1	20	0.005^{Sig}	Non-OR
	C/T	2	20	1	20		
	T/T	4	40	3	60		
	Allele	Patients		Control		$CalX^2$	OR 95%CI
IL-1β rs 16944 haplotype	C	6	50	2	33.33	0.015^{Sig}	2.030 (1.14-3.59)
	T	6	50	4	66.67		

Our results show that the rate of infection with the virus in urban is higher than in the rural, which may be due to the high population density, with the lack of care, Mohammed *et al*. (2018) indicated that human papillomavirus infection occurs, when the virus enters the body, usually through a cut, scrape, or small cut in the skin, the virus is mainly transmitted through skin-to-skin contact.

The young ages (17-26) increased the infection rate, which amounted to 46.15%, which may be due to increased sexual activity and frequent childbearing, as well as abortions, as Akarolo-Anthony *et al.* (2014) show that genital human papillomavirus infection is transmitted at young ages, which range from 17-30 years, by sexual intercourse, anal sex, and other methods of skin-to-skin contact in the genital area.

The level of IL-10 and IL-1β was high in the age groups 17-26 and 27-36 years old, while the IgM was higher in the age group 37-50 years. The levels of IL-10, IL-1β and IgM were higher in the urban than in the rural, which may indicate that the levels of these parameters result in an increase in the infection rates shown in our study.

The C/T hybrid genotype has the lowest infection rate compared to the pure genotypes (C/C and T/T). There were no significant differences between the C and T alleles in the percentage of HIV infection, the study of molecular characteristics indicates that the susceptibility to virus infection of hybrid individuals is higher than that of pure individuals, that the resistance of pure individuals to the virus may be higher compared to the hybrid individuals.

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