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Descriptive study : survey of Blood donors attending the Blood Bank Centre in Tikrit Governorate, Iraq

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ABSTRACT

A descriptive study was done to detection of viruses in blood donors attending the blood bank center in Tikrit city . for six month /2019.
In addition to determine some demographic factors like sex, Age and blood group in infected cases.

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Introduction :-

Blood transfusion can transmitted many infections and diseases, some of it viruses , bacterial , and other many be parasites.

Infection with hepatitis B virus (HBV) and hepatitis C (HCV) virus are major health problems [1].

It is estimated that about 450 million people are chronically infected with HBV and about 200 million people are infected with HCV worldwide [2,3] .

In Iraq viral hepatitis prevention and control program was started during early seventies [4]. Many studies had been conducted to understand the prevalence of hepatitis B in the country and it was found that Iraq is of intermediate prevalence regarding type B (3.3%). on the other hand , it was found that hepatitis B in the blood donors was 3.6% in 1973 and 4.1% in 1984 [5].

In the last 10 years , there was a decrease in the prevalence of hepatitis B to less than 1% The decrease in prevalence among general population is due to application of the prevention and control program, especially safe blood transfusion and safe injections , in addition to introduction of vaccination program .

In Iraq the number of infected cases with HIV are about 108 at the end of 1998 , it divided as 90.8% males , 9.2% females and the rest was children below 5 years [6,7] .

Officially the AIDS – HIV pandemic come to Iraq via contaminated blood in 1986 with haemophilias being the primary victims , there are only 3/228 cases of HIV in Tikrit government [8] .

The sexually transmitted diseases (STDs) or sexually transmitted infections (STIs) are caused by bacteria, viruses and parasites that are transmitted through unprotected sex (vaginal , anal and oral) and skin to skin genital contact Zika virus can also be sexually transmitted [9,11].

bacterial infections include bacterial vaginosis, chlamydia , gonorrhoea, Lyphogranuloma venerum (LGV) and syphilis [12,13] .

Viruses cause genital herpes , Hepatitis B , Human papilloma virus (HPv) and Human immune-deficiency virus (HIV) and trichomoniasis are parasite infection [14,15] .

Syphilis has been found to account for about 10% of these sexually transmitted diseases[16,17] .

Material and Methods

Blood Samples :-

The research samples included all individuals who donated blood at the Tikrit blood bank from January to 31 June 2019.

A 5 ml blood sample was obtained from each donor , then the samples were centrifuged at 1500 rpm for 3 minutes for serum preparation.The personal information of blood donors was collected from blood bank records which include name , age , gender and blood groups (RH).

Enzyme linked immunosorbent Assay :-

The level of HCV-Ab (fourth generation) and the hepatitis B surface antigen (HBs Ag) were assessed by commercial DIA.PRO diagnostic bioprobes ELISA kit following manufacturer's instruction, and HBe.Ag were not part of screening .

The VDTL test is a screening test for STDs, by produce antibodies after contact with the bacteria which cause the disease.

Results:

The total number of blood donors from January to June-2019 was 2871 (98.57%) men and and 35 (1.21%) women as showed in table (1).

The donors mean age was 33.4 $\pm$ 8.3 years and the donors come from Tikrit's center and its surrounding as showed in table(2).

High number of blood donors with blood group (O^{+ve}) was 982 (34,2%) and Low number with blood group (AB^{-ve}) was 16 (0.55%) table(3).

In all donors , total number of positive HBsAg was 0.27% (8/2871) higher in mean and negative cases in women were registered.

In the other hand there was no significant, difference in the number

of positive cases between the six months, although the findings revealed that was higher in June (0.52%) and no cases in January .

Percentage of positive anti-HCV was (5/2871) (0.16%) in all donors and significantly higher in men 4/2871 (0.13%) and 1/2871 (0.034%) in women .

No cases of HIV have been identified in all blood donors during the six month of the study and four blood donors infection with STDs were confirmed to be (0.33%) 2/595 in April and 1/426 (0.23%) in may and 1/569 (0.17%) in June as showed in table (4).

Discussion:-

The spread of blood borne viruses, especially HBV and HCV, increases at an alarming rate world wide and this created a dramatic impact upon some countries such as Iraq [18 ,20].

In current study , 0.27% of the recruited samples were positive for HBV.

The prevalence of HBV infection was studied in Iraq previously [21,22].

In two reports studying the prevalence of HBV subjects in Baghdad and Najaf , the prevalence was around 0.7%, while third study in Kerbala were shown a high as 3.5% [23,24]. In study conducted in Egypt recruiting healthy volunteer blood donors , HBV positively was reported for 5% of the subjects[25].

Similarly , in a study conducted in Kuwait , the prevalence of HBsAg positive subject , among Kuwaiti nationals and non Kuwaiti Arabs was 1.1% and 3.5% respectively [26] .

In other study conducted in Suadi Arabia, it was found that the prevalence of HBV-positive was 3.8% among blood donors [27] .

On the other hand , study conducted in Iran showed that the prevalence of HBV among blood donors decreased from 1.79% in 1998 to 0.41% in 2004 , such a decline might be due to improvement in vaccination program, using blood transfusion database and possibly decreasing the prevalence of HBV infection in general population [28] .

The current study indicated that 0.16% of the samples were positive for HCV-Ab.

This is less than what was found previously in Iraq, where 0.5 % of blood donors were positive for HCV-Ab in Babylon [23] .

The prevalence of HCV-Ab positive subjects varies from one country to another ranging from 0.4% to 19.2% [27] .

In a study conducted in Iran , the prevalence of HCV-Ab positive cases was 0.5% while the prevalence was 0.4 % in Saudi Arabia [27,29] .

Further studies with larger sample recruitment should be conducted to confirm the results.

Studying the risk factors associated with HBV and HCV in Iraq would give significant information to the infection control department and health planers to control the spread of such infections . This was preliminary study and case control studies should be planned for future [29].

It is noteworthy that , HCV-Ab positively does not reflect the prevalence of HCV as it does not differentiate between old resolved and recent cases.

There for in future all positive cases should be referred to viral load study (RT-PCR) to confirm the results[29].

The prevalence of sexually transmitted diseases or infections (STDs)(STIS) also referred as venereal diseases (VD) not well obvious, In current study the percentage is (0.13%) all are men , this result not well dependable, because most STDs initially do not cause symptoms, in addition , along number of positive infected cases are diagnosed in the dermatological and gynecological department , as well as the infected person , not visiting a doctors because this infection consider a stigma in our society [29].

The majority of donors in the study were male , This gender imbalance might be due to the fact that in Iraqi socity men are more proactive and independently make decisions.

In addition , males are called to make responsibilities and represent their tribes and families.

Table (1) Total number and percentage of blood donors. (Male , Female) according to Month.

Month	Total number	Sex			
		Male		Female	
		No.	%	No.	%
January	451	448	99.3%	3	0.7%
February	368	362	98.3%	6	1.6%
March	462	455	98.4%	7	1.5%
April	595	590	99.1%	5	0.84%
May	426	421	98.8%	5	1.17%
June	569	560	98.4%	9	1.58%
Total	2871	2836	98.7%	35	1.21%

Table (2) Total number of blood donors according to Age groups.

Month	Total number	Age group / year																		
		≤ 19				20 – 29				30 – 39				40 – 49				≥ 50			
		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
January	451	5	1.1	-	0	129	28.6	2	0.44	179	39.6	-	0	102	22.6	1	0.22	33	7.3	-	0
February	368	11	2.9	-	0	120	32.6	2	0.54	134	36.4	3	0.81	82	22.2	1	0.27	15	4.07	-	0
March	462	3	0.64	-	0	111	24.0	2	0.43	215	46.5	1	0.21	99	21.4	2	0.43	28	6.06	1	0.21
April	595	15	2.5	-	0	194	32.6	3	0.50	162	27.2	1	0.16	158	26.5	1	0.16	61	10.2	-	0
May	426	18	4.2	-	0	154	36.1	2	0.46	179	24.01	1	0.23	59	13.8	2	0.46	11	2.5	-	0
June	569	12	2.08	-	0	187	32.8	3	0.52	224	39.3	6	1.04	91	15.6	5	0.86	40	6.9	1	0.17
Total	2871	64	2.2	0	0	895	31.1	14	0.48	1093	38.07	12	0.41	591	20.5	12	0.41	188	6.54	2	0.06

p> 0.05 NS

Table (3) Total number and percentage of blood donors according to the blood groups and RH

Month	Total number	Blood group and RH															
		O-		O+		A-		A+		B-		B+		AB-		AB+	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
January	451	22	4.8	180	39.9	9	1.9	101	22.3	12	2.6	1.2	22.6	1	0.22	24	5.3
February	368	12	3.2	122	33.1	11	2.9	97	26.35	12	3.2	92	25	3	0.81	19	5.1
March	462	14	3.0	159	34.4	9	1.9	113	24.4	13	2.8	115	24.8	2	0.43	37	8.0
April	595	33	5.5	218	36.6	22	3.6	142	23.8	14	2.3	132	22.1	5	0.84	29	4.8
May	426	17	3.9	139	32.6	11	2.5	122	28.6	11	2.5	94	22.06	-	0.0	32	7.5
June	569	43	7.5	164	28.8	27	4.7	149	26.1	21	3.6	123	21.6	5	0.87	37	6.5
Total	2871	141	4.9	982	34.2	89	3.09	724	25.2	83	2.8	658	22.9	16	0.55	178	6.1

Table (4) Total number of blood donors according to the types of Viral infections and sex

Month	Total number	Types of infection															
		HBsAg				HCV				HIV				STDs			
		Male		Female		Male		Female		Male		Female		Male		Female	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
January	451	-	0	-	0	1	0.22	-	0	-	0	-	0	-	0	-	0
February	368	1	0.27	-	0	1	0.27	-	0	-	0	-	0	-	0	-	0
March	462	1	0.21	-	0	-	0	-	0	-	0	-	0	-	0	-	0
April	595	2	0.33	-	0	1	0.16	-	0	-	0	-	0	2	0.33	-	0
May	426	1	0.23	-	0	-	0	-	0	-	0	-	0	1	0.23	-	0
June	569	3	0.52	-	0	1	0.17	1	0.17	-	0	-	0	1	0.17	-	0
Total	2871	8	0.27	-	-	4	0.13	1	0.034	-	-	-	-	4	0.13	-	-

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