

Hepatitis B In Patients With Thalassemia Major In Tikrit Teaching Hospital.

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Abstract

Thalassemia is hereditary disease which have a significant risk of contracting of blood – born infections like hepatitis and HIV through the regular episodes of blood transfusions. This study was conducted to evaluate patients with thalassemia and to find out the percentage of hepatitis B infected patients. It was a cross sectional study done in Tikrit Teaching Hospital involved all thalassemia patients , (50) patients. The percentage of hepatitis B among these patients was (10%). Among the seropositive patients, males and females comprised (10%) for each. Patients from urban area were (9.1%) , while those from rural areas were (11.8%). The percentage of non-vaccinated patients with seropositive hepatitis B was (14.3%) compared to the non-vaccinated (6.9%). It was found that when the blood transfusion amount increases the risk of acquiring hepatitis also increases. There were (18.2%) of patients with abnormal liver function test had seropositivity for hepatitis B, and (3.6%) of the same group had normal function test. It was revealed that (16.7%) of the seropositive patients had undergone splenectomy. It is concluded that hepatitis is still a risk among thalassemic patients attending thalassemia center in Tikrit Teaching Hospital. Therefore it is recommended to ensure a good vaccination for all patients and a regular screening about this infection and to conduct a broader study involving many centers across the country.

Introduction

β -Thalassemia is a hereditary anemia characterized by absent to decreased synthesis of β -globin chains resulting in imbalance between α - and β -chains and consequent ineffective erythropoiesis and hemolysis. The spectrum of clinical manifestations in this disorder is wide, ranging from the asymptomatic state to the lifelong transfusion dependency, with all its accompanying complications. The two clinical forms of the disease requiring treatment are thalassemia major and thalassemia intermedia (. Patients with thalassemia major usually present in the first year of life and subsequently require regular transfusions and iron chelation to survive, whereas those with TI have a late presentation and may be transfusion-independent or require only sporadic transfusions. β -Thalassemia is particularly prevalent among the Mediterranean populations⁽¹⁾.

Blood transfusion at regular intervals to maintain hemoglobin level at level above 10 g/dL along with daily chelation therapy remains the main therapeutic management in thalassemia. These thalassemic patients are at higher risk of developing transfusion-transmitted

infections which include hepatitis B,C and D,HIV, cytomegalovirus, malaria and syphilis⁽²⁾. This study aims to evaluate patients with thalassemia major and to find out the percentage of hepatitis B-seropositive patients.

Patients and Methods

This is a cross-sectional study which was performed in Thalassemia center in Tikrit Teaching Hospital in the period extended from the first of June 2010 to the end of March 2011. All the fifty patients who attended this center were enrolled in this study. An interview with patients and their families as well as reviewing their medical records was done. Blood samples were taken and sent for hepatitis B serology by using enzyme-linked immunosorbent assay (ELLIZA) to detect hepatitis B surface antigen (HBsAg). Also samples were sent to estimate serum iron (considered elevated if its value was above (33 μ mol /L, normal range is 4-33 μ mol /L), Serum alanine aminotransferase (ALT, SGPT) was considered elevated if its value was above (50 U/L, normal range is 6-50 U/L), and aspartate aminotransferase (AST, SGOT) was

considered elevated if its value was above (55 U/L, normal range is 15-55 U/L).

Data was collected and represented by using appropriate tables.

Results

The study sample was (50) patients with thalassemia major, (20) males and (30) females, their ages were between under one year to more than (20) years. Five patients were found to be seropositive for hepatitis B (10%).

The sociodemographic characteristics of the study sample were as following, (2) patients (28.6%) in the age group (>20) years were HBsAg seropositive, and in age group (16-20) years was 1(25%), and in age group (11-15) years it was 1(16.7%). There were (2) males (10%) and (3) females (10%) who were found seropositive. Three patients (9.1%) were from urban areas and two patients (11.8%) from rural areas were seropositive for hepatitis B. These results were shown in table (1).

Concerning the distribution of cases according to vaccination against hepatitis B, it was found that two vaccinated patients (6.9%) were seropositive, while the non-vaccinated patients who were seropositive for hepatitis B were 3 (14.3%), as shown in table (2).

Regarding the distribution of seropositive cases of hepatitis B in regard to number of blood transfusion, it was found that three patients (33.3%) of those received blood transfusion between (50-100) times were seropositive, one patient (16.7%) in the category (>200) transfusions was seropositive and one patient (10%) in the category (1001-150) transfusions. These results were shown in table (3).

Concerning the distribution of cases according to liver function test, it was found that one seropositive patient (3.6%) has normal liver function test, and four seropositive patients (18.2%) had abnormal test, as shown in table (4).

Seropositive cases of hepatitis B with normal serum iron were three patients (13.04%) and those with elevated serum iron were two (7.2%). These results were shown in table (5).

In regard to distribution of cases of hepatitis B according to duration of disease,

there was no cases of hepatitis in the categories (<1), (1-5) and (16-20) years. There was one patient (7.14%) who was seropositive in category (6-10) years. Two patients (28.6) in the categories (11-15) and (>20) years were hepatitis B seropositive, these results are shown in table (6).

Cases of hepatitis who undergone splenectomy were two (16.7%), while those who are seropositive but did not undergo the operation were three (7.9%). This result is shown in table (7).

Discussion

The current study found the percentage of hepatitis among patients with thalassemia was (10%), which is near that found in general Iraqi population as revealed by an Iraqi study which was (9.12%)⁽³⁾. But this result was lower than what found by a study In Kurdistan- Iraq which found the prevalence as (5 seropositive patients out of 150 thalassemic patients)⁽⁴⁾. However this result was higher than the percentage found in an Iranian study which was (1.5%) in thalassemic patients, this can be explained by the fact that the Iranian study was a multi-center one, on the other hand hepatitis B infection was (2.5 – 3.5 %) in the Iranian general population⁽⁵⁾. In general, Iraq still among other middle eastern countries with intermediate endemicity for hepatitis B like Cyprus and United Arab Emirates⁽⁶⁾.

This study showed that percentage of hepatitis B seropositive patients was higher in non-vaccinated patients as compared with the vaccinated ones, (14.3%) and (6.9%) respectively. It is lack of vaccination which makes patients at higher risk to contract the infection, this in agreement with a study done in India which found that there is increased risk of thalassemia patients who were not vaccinated⁽⁷⁾.

The current work found that those who have blood transfusion between (50-100) had seropositivity for hepatitis B with a percentage of (33.3%) followed by those who had transfusions of mor than (200) whose percentage was (16.7%). This result was not in agreement with studies done in Iran⁽⁸⁾ and Turkey⁽⁹⁾ which

found that longer duration of blood transfusion was associated with increased risk of acquiring hepatitis B. However, this difference in results between the studies can be explained by the fact that the number of patients who attending the center of thalassemia in Tikrit Teaching Hospital was relatively smaller.

The percentage of abnormal liver function was higher than normal function in the seropositive patients, this can be explained by the fact that hepatitis results in deterioration of liver function as well as other factors such as iron overload. This result is in agreement with a study done in Lebanon⁽¹⁾.

The results showed that elevated serum iron was noted in (54%) of the study sample, this result was expected as these patients usually have regular blood transfusions. This result was in agreement with an Egyptian study⁽¹⁰⁾.

Seropositivity to hepatitis B was noted to increase with increasing duration of the disease, this can be explained by increasing risk of acquiring the disease as these patients receive more blood transfusion with time. This finding was found by other studies^(1,9).

In regard to splenectomy, it was revealed that the percentage of hepatitis B-seropositive patients who undergone this operation was (16.7%) while those who did not undergo this operation was (7.5%). However, this result was not in agreement with a Lebanese study which found that (90%) of patients with thalassemia had undergone splenectomy⁽¹⁾.

Conclusions and Recommendations

This study concludes the following; Hepatitis B infection still had a risk among patients with thalassemia. It was that not all patients with thalassemia were vaccinated against hepatitis B. There is a significant number of patients had deteriorated liver function test. The risk of hepatitis B increases with increased age and number of blood transfusions.

The study recommends to:

- ensure vaccination against hepatitis for all patients as well meticulous blood screening for hepatitis in the blood bank.

- Carry out a multi-center study so it can cover all centers in Iraq.
- Do a regular survey for hepatitis for patients with thalassemia.

References

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Table (1): Sociodemographic characteristics of study sample.

		Hepatitis B			
		Seropositive		Seronegative	
		No.	%	No.	%
Age	< 5 yr	0	0	13	100
	5-10 yr	1	5.9	16	94.1
	11-15 yr	1	16.7	8	93.3
	16-20yr	1	25	3	75
	> 20 yr	2	28.6	5	71.3
	Total	5	10	45	90
Gender	Male	2	10	18	90
	Female	3	10	27	90
	Total	5	10	45	90
Residency	Urban	3	9.1	30	90.9
	Rural	2	11.8	15	88.2
	Total	5	10	45	90

Table (2): Frequency distribution of vaccination against hepatitis B among patients with thalassemia major.

		Hepatitis B				Total	
		Seropositive		Seronegative			
		No.	%	No.	%	No.	%
Vaccination Status	Vaccinated	2	6.9	27	93.1	29	58
	Not-vaccinated	3	14.3	18	85.7	21	42
	Total	5	10	45	90	50	100

Table (3): Distribution of cases of hepatitis B versus number of blood transfusion.

		Hepatitis B				Total	
		Seropositive		Seronegative			
		No.	%	No.	%	No.	%
Number of Blood transfusion	< 50	0	0	23	100	23	46
	50 – 100	3	33.3	6	66.7	9	18
	101 -150	1	10	9	90	10	20
	151- 200	0	0	2	100	2	4
	> 200	1	16.7	5	83.3	6	12
	Total	5	10	45	90	50	100

Table (4): Frequency distribution of cases of thalassemia in regard to liver function test.

		Hepatitis B				Total	
		Seropositive		Seronegative			
		No.	%	No.	%	No.	%
Liver Function Test	Normal	1	3.6	27	96.4	28	56
	Abnormal	4	18.2	18	81.8	22	44
	Total	5	10	45	90	50	100

Table (5): Distribution of cases of hepatitis B and serum iron.

		Hepatitis B				Total	
		Seropositive		Seronegative			
		No.	%	No.	%	No.	%
Serum Iron	Normal	3	13.04	20	86.96	23	46
	Elevated	2	7.4	25	92.6	27	54
	Total	5	10	45	90	50	100

Table (6): Distribution of hepatitis B and duration of disease.

		Hepatitis B				Total			
		Seropositive		Seronegative		No.		%	
		No.	%	No.	%				
Duration of disease (year)	< 1	0	0	4	100	4	8		
	1-5	0	0	15	100	15	30		
	6-10	1	7.14	13	92.86	14	28		
	11-15	2	28.6	5	71.4	7	14		
	16-20	0	0	3	100	3	6		
	> 20	2	28.6	5	71.4	7	14		
	Total	5	10	45	90	50	100		

Table (7): Frequency distribution of cases with splenectomy and hepatitis.

		Hepatitis B				Total			
		Seropositive		Seronegative		No.		%	
		No.	%	No.	%				
Splenectomy	Yes	2	16.7	10	83.7	12	24		
	No	3	7.9	35	92.1	38	76		
	Total	5	10	45	90	50	100		