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Seroprevalence of Hepatitis B, Hepatitis C and HIV in Patients with Hemoglobinopathy Patients

Hemoglobinopati Hastalarında Hepatit B, Hepatit C ve HIV Seroprevalansı

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ABSTRACT

Purpose: Thalassemia and sickle cell anemia patients have frequent transfusions. Hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV) are tramsmitted infections with blood. The objective of this study is to determine frequency of these infections in our hemoglobinopathy patients.

Material and Methods: We investigated 410 hemoglobinopathy patients. Viral serologies were detected with second-generation enzyme-linked immunosorbent assay method. In 410 patients (116 thalassemia major, 16 thalassemia intermedia, 12 hemoglobin H, 222 sickle cell anemia, 43 sickle-beta thalassemia and 1 Hb SE), there were 258 males and 152 females.

Results: The rate of HBV is 1,2%, HCV is 3,2% and HIV is 0%. Our results shows that transfusion transmitted viral infection prevelance is not high compared to the literature.

Conclusion: Using sensitive screening tests with periodically and right donor selection are very important for preventing these infections in hemoglobinopathy patients who are under high risk.

Key Words: Viral hepatitis, HIV, hemoglobinopathy

ÖZET

Amaç: Talasemi ve orak hücreli anemi hastaları sık transfüzyon almaktadır. Hepatit B (HBV), hepatit C (HCV) ve insan immün yetmezlik virüsü (HIV) kanla geçmektedir. Bu çalışmanın amacı hemoglobinopati hastalarımızda bu enfeksiyonların sıklığını belirlemektir.

Materyal ve Metod: Dört yüz on hemoglobinopati hastasını inceledik.Viral serolojiler "ikinci jenerasyon enzim bağlantılı immün absorban tahlil" metoduyla incelendi. Dört yüz on hastanın (116 talasemi major, 16 talasemi intermedia, 12 hemoglobin H, 222 orak hücreli anemi, 43 orak-beta talasemi ve 1 Hb E) 258'i erkek, 152'si kadındı.

Bulgular: HBV sıklığı %1,2, HCV %3,2 ve HIV %0 bulundu. Sonuçlarımız göstermektedir ki transfüzyon ilişkili viral enfeksiyon sıklığı literatüre kıyasla daha yüksek değildir.

Sonuç: Peryodik olarak duyarlı tarama testlerinin kullanılması ve doğru verici seçimi yüksek risk altındaki hemoglobinopati hastalarının bu enfeksiyolarda korunmasında çok önemlidir.

Anahtar Kelimeler: Viral hepatit, HIV, hemoglobinopati

INTRODUCTION

Thalassemia and sickle cell anemia are hemoglobinopathies requiring blood transfusions. HBV, HCV and HIV have important role in transfusion related complications. In thalassemia major patients, Hepatitis B positivity is seen at a rate of 1%-20% and HBV infection is an important

cause of chronic liver disease and hepatocellular carcinoma. After an incubation period of 4-20 weeks, acute hepatitis occurs mostly. In 5-10% of patients, chronic hepatitis develops. Cirrhosis may develop at a rate of 1-2% per year. As a result, hepatocellular carcinoma may be seen. All patients diagnosed thalassemia should be vaccinated. HCV is seen acute infection and it is usually benign and asymptomatic. But in 70-80% of patients, chronic liver disaese is seen. Chronic HCV may be more severe if thalassemia patients have iron overload or other concurrent infections (HBV, HIV). Hepatocellular carcinoma may occur. HIV infection is seen at a rate of <1% to >20% in thalassemia patients and may cause AIDS[1]. In our country hemoglobinopathy prevelance is high in southern areas. We aimed to report our results.

MATERIALS and METHODS

We scanned the 410 file records of patients registered to our hemoglobinopathy center. Viral serology had been studied with second generation ELISA.

RESULTS

Four hundred and ten patients (116 thalassemia major (28,3%), 16 thalassemia intermedia (3,9%), 12 hemoglobin H (2,9%), 222 sickle cell anemia (54,1%), 43 sickle and beta thalassemia (10,5%) and 1 Hb SE disease, (0,2%)) were enrolled in our retrospective study. There were 258 males and 152 females. The mean age was patients were 22. In 410 hemoglobinopathy patients there were 5 (1,2%) HBV positive, 13 (3,2%) HCV positive patients. None of the patients was HIV positive.

The mean number of transfusion of thalassemia major was 21,05±8,47/year. Five of 116 thalassemia major patients were HCV positive (4,3%). The mean age is 26,6±5,03 and mean transfusion number is 23±8,60/year in HCV positive patients. The mean age is 14,4±7,44 and mean transfusion number is 20,98±8,46/year in HCV negative patients. None of 116 thalassemia major patients were HBV positive.

Seven of 265 sickle cell anemia patients (including sickle-beta thalassemia) were HCV positive (2,6%). Four of 265 sickle cell anemia patients were HBV positive (1,5%). The mean age is 31,5±15,06 in HBV positive patients. The mean age is 25,5±9,3 in HBV negative patients. There were no difference between HBV negative and HBV positive patients according to mean age (p:0,20).

One of 12 Hb H disease patient was HCV positive (8,3%). One Hb SE disease patient was negative for HBV, HCV and HIV (Table 1).

Table 1.HBV, HCV and HIV positivity rates of the patients

Patients	HBV positivity (n/%)	HCV positivity (n/%)	HIV positivity (n/%)
Thalassemia major (n:116)	0 (0%)	5 (4.3%)	0 (0%)
Thalassemia intermedia (n:16)	0 (0%)	1 (6,2%)	0 (0%)
Sickle cell anemia (including sickle-beta thalassemia) (n:265)	4 (1,5)	7 (2,6%)	0 (0%)
Hb H (n:12)	0 (0%)	1 (8,3%)	0 (0%)
Hb SE disease (n:1)	0 (0%)	0(0%)	0(0%)

DISCUSSION

Transfusion associated infections are important problem in hemoglobinopathy patients. In a study conducted in Gujarat in India, among 100 thalassemia major children, HIV, HBs Ag and anti-HCV seropositivity were 9%, 6% and 18% respectively. Seropositivity were high in older children and also in children who had high transfusion number[2]. In a recent study in Egypt, among 200 thalassemia major patients, 40,5% patients were anti-HCV, 29% of patients were HBs ag positive, 6,5% of patients were anti HBC positive. Older age and increased number of transfusion were found related with higher prevelance of HCV and HBV[3]. In a study conducted in Pakistan, among 79 thalassemia major patients, HCV was seen in 43%, HBV was seen 5,1% and none of them had HIV. In Iran in 14 years HCV prevelance was found 4,2/1000 patient year (PY). There was seen that HCV prevelance decreased to 1.3/1000 PY from 6.2/1000 PY in the second 7 years. This may be explanied by using safety donors and transfusion situations[4]. In a study from Turkey 399 multitrasfused patients ;with thalassemia and sickle cell anemia in 10 year period, HBs Ag positivity was 0,75%, anti HCV was 4,5% but none of them was HIV positive. They interpreted that more sensitive screening tests and strict donor selection yielded lower prevelance than the past[5]. In a study conducted in Iran, among 732 thalassemia major and intermedia patients, HBs Ag positivity was 1,5%, anti HCV was 19,3% and none was HIV positive[6]. In a crossectional study made with thalassemia major patients and healty blood donors in Pakistan, out of 160 thalassemia major patients, anti HCV positivity was 13%, HBs Ag positivity was 1,25%, anti HIV was 0%. Out of 5517 healty donors, HCV and HBV positivity were 1,9% and 1,8% respectively. While HCV positivity was 22% in thalassemic pateints older than 10 years of age, 8,4% in younger than 10 years of age (p: 0,005)[7].

CONCLUSION

HBV, HCV and HIV positivity is common in hemoglobinopathy patients. But in the years, with development of donor selection and viral screening methods, these infections are seen less in our area as in the world. Periodic screening of hemoglobinopathy patients for viral serology is very important for prevention from serious complications.

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