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Human parvovirus B19 among hemophilia A patients in Basrah, Southern Iraq

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Abstract:

BACKGROUND: Hemophilia A patients, especially if there is shortage in recombinant Factor VIII concentrate, may require occasional blood and/blood products transfusion, rendering them more susceptible to acquire infections including *Parvo B19* virus (B19V).

OBJECTIVES: To assess the presence of B19V viral DNA among hemophilia A patients and look for its possible association with disease-related variables.

SUBJECTS AND METHODS: This case–control study was carried out from October 2019 to August 2020. A total of 95 male patients with Hemophilia A and 95 healthy subjects matched for age and gender were enrolled in the study. The identification of B19V DNA was achieved using the real-time polymerase chain reaction (PCR). Hepatitis C virus (HCV) antibodies and hepatitis B surface antigen (HBsAg.) were tested by ELISA method.

RESULTS: The frequency of B19V among hemophilia A patients was 18.7% compared to 6.3% among healthy subjects. None of the control group has been tested positive for HCV antibodies or HBsAg. While among patients, the frequencies of hepatitis C and B were 8.4% and 2.1%, respectively. Patients with hemophilia A and B19V have significantly higher rate of arthropathy at the time of blood sampling and blood and/blood products transfusion, especially fresh-frozen plasma (FFP) and cryoprecipitate compared to those who did not receive such blood products (92.3% vs. 50%), $P < 0.05$.

CONCLUSIONS: Parvovirus B19 was detected in a significant proportion of hemophilia patients especially those with a history of FFP and cryoprecipitate transfusion. The use of PCR technique is essential to detect viruses in donor's blood to avoid infection among this high-risk group.

Keywords:

Hemophilia A, Iraq, Parvo B19

Introduction

Hemophilia A is the most common severe congenital bleeding disorder which results from the deficiency in the clotting protein Factor VIII (FVIII). FVIII deficiency is an X-linked recessive disorder occurring in 1 in every 5000 male births without an ethnic predominance.[1]

Patients with hemophilia, especially if there is a lack or shortage of recombinant FVIII concentrate, may require occasional blood and/blood products transfusion (plasma and cryoprecipitate) to compensate for missing blood or stop of bleeding. The main problems in hemophilic patients that are related to the blood and blood product transfusion are infections especially by viruses. The most common viruses are hepatitis C and B viruses (HCV), HIV and *Parvovirus B19* (B19V).[2]

Human B19V, is the smallest human DNA virus, related to the Erythroparvovirus genus inside the Parvoviridae family.[3] This virus is transmitted mainly by the respiratory route and has the ability to be transmitted

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