

Successful Renal Transplantation in a Patient with HBS Antigen Positivity Caused By Hepatitis B Vaccination

Hepatit B Aşısına Bağlı HBS Antijen Yalancı Pozitifliği Olan Bir Olguda Başarılı Böbrek Nakli

ABSTRACT

Hepatitis B infection is one of the causes of morbidity and mortality in long-term survivors of renal transplantation. Hepatitis B vaccination is recommended for HbsAg and antiHbs antibody negative end stage renal disease patients before transplantation. Serologies to detect hepatitis B infection are included in the routine assessment of renal transplant candidates. However false positive assays for HbsAg can be recognized after hepatitis B vaccination. Hemodialysis patients have been found to be at higher risk for this complication. We present the first case in the literature of renal transplantation during false positive Hbs antigenemia after hepatitis B vaccination.

KEY WORDS: Renal transplantation, HbsAg, False positivity

ÖZ

Hepatit B enfeksiyonu böbrek nakli hastalarında uzun dönemde morbidite ve mortalite nedenlerinden birisidir. HbsAg ve antiHbs negatif saptanan son dönem böbrek yetmezlikli hastalara nakil öncesi hepatit B aşılması önerilmektedir. Nakil hazırlıkları esnasında hepatit B enfeksiyonuna yönelik serolojik incelemeler yapılmalıdır. Hepatit B aşısı sonrası HbsAg değerlendirmesinde yalancı pozitiflikler saptanmıştır. Hemodiyaliz hastalarında bu durum daha sık görülmektedir. Biz burada literatürde hepatit B aşılması sonrası yalancı pozitif Hbs antijenemisi dönemde böbrek nakli yapılan ilk vakayı sunuyoruz.

ANAHTAR SÖZCÜKLER: Renal transplantasyon, HbsAg, Yalancı pozitiflik

INTRODUCTION

Hepatitis B is a public health problem in the developing world. Hemodialysis patients are among high risk patients for this infection because of blood transfusions, parenteral injections and breaks in universal infection control procedures. The prevalence of hepatitis B infection is 5.0% among hemodialysis patients in Turkey (1). Risk of chronicity of hepatitis B infection is increased in dialysis patients and this can be a barrier to renal transplantation.

Testing for hepatitis B infection every three months is mandatory for seronegative hemodialysis patients according to national regulations in Turkey. Serologies to detect hepatitis B infection are also included in the

routine assessment of the renal transplant candidates. Hepatitis B vaccination is recommended for HbsAg and AntiHbs antibody negative hemodialysis patients although efficacy of vaccination is lower in this population compared to patients with normal kidney function.

There are some case reports indicating HbsAg positivity after hepatitis B vaccination in the literature. We describe the first patient in the literature that underwent successful renal transplantation during HbsAg positivity after vaccination without antiviral prophylaxis.

CASE REPORT

A 31-year-old female patient with chronic kidney disease of unknown etiology was

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referred to Hacettepe University Medical Faculty Nephrology Department for renal transplantation from her father. The patient had been in the routine hemodialysis programme three times a week for the last two months. Laboratory values on admission were ALT: 8.5 U/L, AST: 9.9 U/L, GGT: 11.2 U/L, ALP: 100 U/L, bilirubin: 0.3 mg/dl, Na: 135 mEq/L, K:5.3 mEq/L, Cl:102 mEq/L, glucose: 88.7 mg/dl, blood urea nitrogen: 36.2 mg/dl, creatinine: 5.9 mg/dl, uric acid: 4.50 mg/dl, total protein: 6.8 g/dl, albumin: 4.4 g/dl, globulin: 2.42 g/dl, Ca: 8.9 mg/dl, P: 5.4 mg/dl, Hb: 8.5 g/dl, leukocyte: 7800/ml, and thrombocytes: 251000/ml. The length of the right kidney was 73 mm with a parenchymal thickness of 12 mm, while the length of the left kidney was 77 mm with a parenchymal thickness of 14 mm on ultrasonographic evaluation. During serological evaluation, HbsAg was found to be positive, AntiHbs antibody was negative, and antiHCV and antiHIV antibodies were also negative. We evaluated the previous serological tests of this patient for hepatitis and observed that HbsAg was negative two months ago. The patient had no symptom related to acute hepatitis during this period, and transaminases that were investigated monthly during previous two months were all within normal limits. HbeAg, antiHbe antibody, antiHbc IgM, antiHbc IgG, HBV DNA were all negative. Since the patient was completely asymptomatic, there was no increase in transaminase levels, and hepatitis markers except for HbsAg were negative, this seroconversion was thought to be false positive. We evaluated the medical records of the patient and found out that a double dose of hepatitis B vaccine (Engerix B, GlaxoSmithKline) had been injected to the patient four days before this test. We thought that this vaccination was the cause of Hbs antigenemia of this patient and we continued with the transplantation process without prophylaxis for hepatitis B. No medical or surgical complication was encountered during or after the transplantation. Hepatitis markers were reevaluated 15 days after transplantation, and we observed that the Hbs antigenemia had disappeared together with appearance of antiHbs antibody.

DISCUSSION

Prevalence of hepatitis B infection among end stage renal disease patients is correlated to the prevalence in the general population. 1% of prevalent hemodialysis patients were found to be seropositive for HbsAg in USA (2), however 5% of hemodialysis patients are HbsAg + in Turkey as it is an endemic country for hepatitis B infection. Vaccination against hepatitis B infection should be considered for all seronegative patients before transplantation although it is less effective in end stage renal disease patients. Only 50% of hemodialysis patients respond to three-dose vaccination (3).

Although hepatitis B infection is not a contraindication for renal transplantation, patients with hepatitis B infection have higher mortality rates after transplantation (4). Detailed pretransplant evaluation of HbsAg positive patients should be performed before transplantation including liver biopsy and

assessing replication by serum markers. Antiviral treatment before transplantation is indicated for patients with mild histology and active replication. All patients with hepatitis B infection should receive antiviral prophylaxis after transplantation to prevent severe potentially fatal reactivation (5).

Accurate pretransplant evaluation of serologic markers for hepatitis B infection is quite important but there are reports of false positive Hbs antigenemia after hepatitis B vaccination. False positive assays for HbsAg after hepatitis B vaccine was first recognized among healthy blood donors (6,7). Afterwards, hemodialysis patients were shown to be at high risk for this complication after vaccination (8,9). Half of the vaccinated patients of a dialysis unit in a study demonstrated HbsAg positivity (8). When followed for 2-4 weeks, these patients did not demonstrate clinical hepatitis and serological positivity was cleared (8-10). Studies in potential blood donors demonstrated that false positive serology can develop within one week of vaccination, and clearance may last as long as one month (11) so potential blood donors are temporarily not allowed to donate for one week after vaccination (12).

We report a case of false positivity of HbsAg after vaccination with hepatitis B vaccine who underwent successful renal transplantation from living related donor without prophylaxis for hepatitis B. The patient had no symptoms related to hepatitis B, transaminase levels were normal and hepatitis B viral load was negative. Guidelines recommend testing for anti Hbs 1-2 months after the last vaccine dose (13). Serological tests within this period may reveal false positive results for HbsAg. Our patient had received a single dose of vaccine just four days before the test. We therefore thought that this was a false positivity and decided not to delay the transplantation. The perioperative period was uneventful and two weeks after transplantation patient demonstrated positivity for antiHbs antibody and the HbsAg positivity was cleared. This patient is unique in the literature because she went to successful renal transplantation without prophylaxis for hepatitis B although she was HbsAg positive which was thought to be caused by the hepatitis vaccine.

In conclusion, hepatitis B vaccines can cause false positivity in the assays of Hbs antigen especially in hemodialysis patients. Checking hepatitis B serology soon after vaccination is meaningless and there is no need to wait for disappearance of HbsAg for renal transplantation if this positivity is thought to be caused by hepatitis vaccine.

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