Prevalence of Anemia in Renal Transplant Patients in Turkey

Türkiye'de Böbrek Nakli Yapılan Hastalarda Anemi Prevalansı

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ABSTRACT

OBJECTIVE: Post-transplant anemia is a common complication in renal allograft recipients. The most common causes are impaired graft function, immunosuppressive drugs, and infections. The aim of our study was to further investigate the prevalence of anemia before and after renal transplantation in renal allograft recipients in Turkey.

MATERIAL and METHODS: We assessed 464 patients who received a kidney transplant between the years 2010 and 2012. The prevalence of anemia was evaluated before transplantation and at the 3 rd and at 6th months after transplantation. Our study is a retrospective study.

RESULTS: The prevalence of anemia at the 6th month after the transplant surgery was 28.8%. The percentage of the patients who did not have anemia prior to the transplant surgery, and who developed anemia after the transplantation was 24.4%.

CONCLUSION: Our findings are similar to those found in the literature, and show that anemia is a very common entity after renal transplantation.

KEY WORDS: Turkey, Anemia, Renal transplant, Post-transplant

ÖZ

AMAÇ: Nakil sonrası anemi böbrek allogreft alıcılarında yaygın görülen bir komplikasyondur. Bunun en sık nedenleri ise bozulmuş greft fonksiyonu, immünsüpresif ilaçlar ve enfeksiyonlardır. Çalışmamızın amacı, Türkiye'deki böbrek allogreft alıcılarında nakil öncesi anemi dağılımını ve nakil sonrası anemi gelişim yaygınlığını araştırmaktır.

GEREÇ ve YÖNTEMLER: Çalışmada 2010 ve 2012 tarihleri arasında böbrek nakli olan 464 hasta değerlendirildi. Nakil sonrası 3. ve 6. aylarda anemisi mevcut olanlar ve nakil öncesi anemisi olanlar analiz edildi. Çalışmamız retrospektif bir çalışmadır.

BULGULAR: Böbrek nakli sonrası 6. ayda anemi prevalansı% 28,8 olarak görüldü. Böbrek nakli öncesinde anemisi olmayan hastaların nakil sonrası anemi gelişim prevalansı ise %24,4 olarak bulundu.

SONUÇ: Bulgularımız literatürde bildirilen yayınlara benzer olarak böbrek allogreft alıcılarında, nakil sonrası anemi gelişiminin yaygın bir entite olduğunu göstermektedir.

ANAHTAR SÖZCÜKLER: Türkiye, Anemi, Böbrek nakli, Nakil sonrası

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INTRODUCTION

Following renal transplantation (RT), erythropoiesis begins and the erythropoietin (EPO) level increases to a sustained level in a month. However, while anemia develops in some renal allograft recipients, the existing anemia persists following transplantation in others. The causes of anemia in renal allograft recipients are acute and chronic allograft dysfunction, use of immunosuppressive drugs such as azathioprine and mycophenolate mofetil, high parathyroid hormone levels, infections such as CMV (cytomegalovirus), ACE (angiotensin converting enzyme) inhibitors and ARB (angiotensin receptor blockers) agents, iron deficiency anemia and perioperative blood loss.

The most important risk factor among these is the impaired renal graft function. When the serum creatinine level rises above 2 mg/dl; it results in reduced EPO production and subsequent anemia. It takes 3 months after renal transplantation to evaluate renal anemia because of non-renal reasons such as perioperative blood loss, frequent phlebotomies and fluid shifts interfere with proper evaluation up until 3 months postengraftment(1). In this study, we aimed to further investigate the prevalence of anemia before and after renal transplantation in renal allograft recipients in Turkey.

MATERIAL and METHODS

The current study included a total of 464 patients who received a kidney transplant between 06/01/2010 and 07/27/2012. All the patients had been on regular outpatient follow-up at Akdeniz University Organ Transplant Institute, which is a nationwide transplantation center. During the study, the prevalence of anemia in patients after renal transplantation was evaluated at the 3rd and 6th months. The World Health Organization (WHO) criteria of a hemoglobin (Hgb) <13 g/dL in men, <12 g/dL in women and <11g/dL in children were used to define anemia Our study is a retrospective study.

RESULTS

Prior to the transplant surgery, 78.8% of the patients had anemia (80.4% of the men, 76% of the women). At the 3rd month of post-transplantation, 37.5% of the patients had anemia. 35.6% of male allograft recipients and 40.8% of female allograft recipients had anemia at the 3rd month after transplantation. On the other hand, the prevalence of anemia decreased to 28.4% 6 months after the transplant surgery, when 28.8% of the men and 27.7% of the women had anemia (Table I).

Of the patients who did not have anemia before the kidney transplantation, 19.3% developed anemia 3 months after the transplantation; while 24.4% developed anemia 6 months after the transplantation. 17,8% of women with no anemia prior to the transplantation developed anemia 6 months after the surgery; while 28.9% of men with no anemia prior to the transplantation developed anemia 6 months after the transplant surgery (Table II).

DISCUSSION

Anemia in kidney transplant recipients is a topic of increasing interest. The prevalence of anemia has also been found to be really high in functional renal transplant patients. There are various data in the literature on the prevalence of anemia after renal transplantation. Elsayed et al reported that the prevalence of anemia was 74% three months after renal transplantation, and 45% six months after renal transplantation (2). Vanrenterghem et al reported that the prevalence of post-transplantation anemia was 38% in the first year after the transplant surgery (3). We found that the prevalence of anemia was 37.5% and 28.4% at the

Table I: Prevalence of anemia in renal transplant patients.

	Before transplantation		**3 months after transplantation**		**6 months after transplantation**	
	Anemia	Normal	Anemia	Normal	Anemia	Normal
Male	80.4%	19.6%	35.6%	64.4%	28.8%	71.2%
Female	76%	24%	40.8%	59.2%	27.7%	72.3%
Total	78.8%	21.2%	37.5%	62.5%	28.4%	71.6%

Table II: Prevalence of anemia in patients with no anemia prior to the renal transplant.

	Anemia 3 months after transplantation	**Anemia 6 months after transplantation**
Female	15.2%	17.8%
Male	22.3%	28.9%
Total	19.3%	24.4%

3rd and 6th months of transplantation, respectively. The results we obtained in our center werefound to be consistent with the literature.

Previous studies suggest that anemia can raise the risk of cardiovascular events in patients on hemodialysis, and cardiovascular diseases have been reported as the primary cause of death in kidney transplant recipients(4). In this regard, renal allograft recipients with anemia should be treated promptly in a manner similar to normal healthy patients. For the treatment of anemia in renal allograft recipients, iron replacement therapy should be used if the patient has iron deficiency and EPO (erythropoetin) therapy should be administered if impaired renal function exists, which are the routine procedures for the treatment of anemia in non-transplant patients and should not be overlooked.

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