

## Re: Effect of Erythropoietin on Kidney Allograft Survival: Early Use After Transplantation

Sir,

We read with interest the article recently published in *Iranian Journal of Kidney Diseases*, titled "Effect of Erythropoietin on Kidney Allograft Survival: Early Use After Transplantation" by Yassari and colleagues.<sup>1</sup> This study focused on the impact of recombinant human erythropoietin on graft survival during the six months after kidney transplantation. In a univariable analysis, they concluded that recombinant human erythropoietin may have favorable effects on renal allograft function when used immediately after transplantation.

We agree that recombinant human erythropoietin is an independent immunomodulating agent and its receptor plays an important costimulatory role on lymphocytes,<sup>2</sup> and it prevents organs against cellular apoptosis as well as it increases the repair of damaged organ.<sup>1</sup> It has an impact on non-specific and specific immunity.<sup>2</sup> Thus, recombinant human erythropoietin may lead to improvement of renal allograft function due to its immunomodulatory effects after transplantation.

It is of interest that Yassari and colleagues<sup>1</sup> reported a higher glomerular filtration rate in kidney recipients who received recombinant human erythropoietin after transplantation compared to individuals taken placebo with no significant difference in hemoglobin levels between two groups after 6 months. In a large retrospective study performed on 2713 adult kidney transplants, impaired renal allograft function was only risk factor associated with post-transplant anemia (odds ratio, 3.6; 95% confidence interval, 1.01 to 12.67;  $P = .047$ ).<sup>3</sup> Although the mean hemoglobin levels were not significantly different between both groups, the mean hemoglobin level in recipients who received recombinant human erythropoietin was higher than those on placebo ( $11.6 \pm 1.2$  g/dL versus  $11.2 \pm 1.1$  g/dL).<sup>1</sup> It has been shown that posttransplant anemia was associated with worse renal allograft function.<sup>3-6</sup> In addition, other study performed on 864 adult kidney transplants showed immediate anemia after kidney transplantation was strongly correlated with poor renal allograft function; moreover, immediate severe anemia was

associated with delayed graft function ( $P = .01$ ).<sup>7</sup>

Although controversy exists concerning the overall effectiveness of recombinant human erythropoietin on kidney function among patients with chronic kidney disease,<sup>8</sup> we agree that recombinant human erythropoietin therapy should be started early to avoid immediate anemia after kidney transplantation and its adverse events on graft function. It may be resulted in improved kidney graft survival due to correction of anemia and its immunomodulatory effects on grafts. Finally, we suggest that further studies with larger sample size and longer period of follow up may be required to determine the impact of recombinant human erythropoietin therapy on kidney transplant outcome.

Eghlim Nemati,\* Shahin Abbaszadeh

Nephrology and Urology Research Center, Baqiyatallah  
University of Medical Sciences, Tehran, Iran  
E-mail:nemati203@yahoo.com

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