Post-Transplant Erythrocytosis, Successfully Treated with Telmisartan and Phlebotomy-Case Report
Ghulam Hassan Malik, MD, DM, FISN FACP
Vijay Kher, MD, DM, FRCP

Abstract:
A 37 year old male who had chronic kidney disease with bilateral small kidneys of unknown cause underwent renal transplantation in May 2007. Nine months following transplantation he was detected to have post transplant erythrocytosis. In addition to three phlebotomies at three different times, treatment with Telmisartan was initiated. A remission was noted after about six months.

Introduction:
Post transplant erythrocytosis (PTE) is defined as an increase in hematocrit greater than 51%. It has been noted in 5-17% of transplant recipients within the first 2 years (1, 2). The etiology of PTE is not clearly known but several possibilities have been raised. Generally it occurs within the first two years after transplant. It usually undergoes spontaneous remission. A case of PTE who responded well to phlebotomies and Telmisartan therapy is described.

Case Report:
On May 10, 2007, a 37 year old male underwent renal transplantation with mother as donor. Tacrolimus, Mycophenolate and Prednisolone were used as immunosuppressants. Post-transplant serum creatinine ranged between 1.5 and 1.8 mg/dl. The serial levels of hemoglobin (Hb), hematocrit (Hct) and Serum Creatinine are given in Table-1. His initial post-transplant Hb level was 10.0 g/dl. On 27-10-2007 Hb was 15.8g. Serum creatinine on 13-11-07 was 1.9. Blood pressure was controlled with Prazosin and Amlodipine. On 3-12-07 Hb level was 17.6 g/dl. On 24-12-07 there was a further rise in Hb to 18.5g (Hct 62%) RBC 8.1 (N=4.5-5.5). Diagnosis of post transplant erythrocytosis (PTE) was made and the patient underwent Phlebotomy of 300ml. Following phlebotomy serum creatinine decreased to 1.7 mg/dl. Treatment with Telmisartan 40mg twice daily was initiated. On 26-2-08 phlebotomy was performed again. On 8-3-08, serum creatinine and Hb levels were 1.6mg/dl and 16.4g/dl respectively.

Discussion:
Diagnosis of PTE is based on excluding secondary causes of erythrocytosis like renal artery stenosis, polycystic kidney disease, renal cell carcinoma, cerebellar hemangioblastoma or chronic hypoxia in heavy tobacco users as clinically indicated. There was no evidence of secondary erythrocytosis in the present case. Risk factors for PTE include the presence of native kidneys, male gender, normal graft function and the absence of rejection, smoking, hypertension and diabetes mellitus (3). In the present case the risk factors of smoking and diabetes mellitus were lacking. Native kidneys may be the source of erythropoietin production as in acquired or hereditary polycystic kidney disease (4,5).
The suggested pathogenic mechanisms include defective feedback regulation of erythropoietin metabolism, direct stimulation of erythroid precursors by angiotensin II and/or abnormalities in circulating insulin like growth factor I levels (3).

In the present case hypertension was difficult to control when Hct levels were high. Following phlebotomy and use of Telmisartan, Hb levels decreased and blood pressure was controlled on smaller doses of antihypertensive medication. Whether hypertension was the cause or the effect of PTE is not clear. Since the patient had hypertension before and continues to have it after remission of PTE, it may indicate that hypertension exacerbation was secondary to PTE. Both angiotensin converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARBs) help in correcting PTE. Phlebotomy may be needed in some cases (6). In one study treatment with Enalapril 5mg/day resulted in a greater reduction in Hb levels compared to therapy with Losartan 50mg.

The better reduction in Hb levels in Enalapril treated patients was associated with a reduction in circulating insulin like growth factor I levels which was not observed in patients treated with Losartan (7). The present case, however, responded well to Telmisartan and continues on same.

Table 1. Showing progress of PTE before and after treatment.

<table>
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<th>Date</th>
<th>Hb (gm/dL)</th>
<th>Hematocrit (Hct)</th>
<th>Se Creatinine (mg/dL)</th>
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References:


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Author Information:

Dr. Ghulam Hassan Malik, MD, DM, FISN, FACP,  
Senior Consultant and Head, Department of Nephrology,  
Khyber Medical Institute, Srinagar (Kashmir)  
Email: ghulamhassanm@yahoo.com

Dr. Vijay Kher, MD, DM, FRCP  
Senior Consultant and Director, Department of Nephrology,  
Fortis Hospital, New Delhi

Conflict of Interest: None