

and C2) simultaneously in 65% of patients.

In conclusion, the present study showed the increased usage of C0 blood level assay for cyclosporine monitoring in Iranian nephrologists practice. However, we are waiting to find a faster, simpler, less expensive, more practical, and more accurate method of cyclosporine assays.

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REFERENCES

1. Nashan B, Bock A, Bosmans JL, et al. Use of Neoral C monitoring: a European consensus. *Transpl Int*. 2005;18:768-78.

2. Knight SR, Morris PJ. The clinical benefits of cyclosporine C2-level monitoring: a systematic review. *Transplantation*. 2007;83:1525-35.
3. Nemati E, Einollahi B, Taheri S, et al. Cyclosporine trough (C0) and 2-hour postdose (C2) levels: which one is a predictor of graft loss? *Transplant Proc*. 2007;39:1223-4.
4. Levy G, Thervet E, Lake J, Uchida K. Patient management by Neoral C(2) monitoring: an international consensus statement. *Transplantation*. 2002;73:S12-8.
5. Hami M, Mojahedi MJ, Naghibi M, Shakeri MT, Sharifipour F. Cyclosporine trough levels and its side effects in kidney transplant recipients. *Iran J Kidney Dis*. 2010;4:153-7.
6. Einollahi B, Teimoori M. Cyclosporine trough level monitoring. *Iran J Kidney Dis*. 2011;5:211-2.
7. Assari S, Lankarani MM, Panahi Y, Einollahi B. Is short term outcome of Iranian renal transplant recipients affected by mean first 6 months C2 level? *Saudi J Kidney Dis Transpl*. 2009;20:1101-4.
8. Pourfarziani V, Nemati E, Taheri S, Khoddami-Vishte HR, Azizabadi Farahani M. Satisfactory outcome despite low 2-hour postdose cyclosporine level in Iranian kidney recipients. *Iran J Kidney Dis*. 2008;2:99-101.

Re: Risk Factors Profile and Cardiovascular Events in Solid Organ Transplant Recipients

Dear Editor,

I read with great interest the review article recently published in the *Iranian Journal of Kidney Diseases* titled "Risk Factors Profile and Cardiovascular Events in Solid Organ Transplant Recipients" by professor Ghods.¹ This review focused its message on drawing the attention of the high prevalence of risk factors and cardiovascular events after organ transplantation, especially in kidney transplant recipients. According to this review, the prevalence of cardiovascular disease risk factors increases or remains higher after kidney transplantation. The cardiovascular risk factors in these patients divide into traditional and nontraditional risk factors, which immunosuppressive agents categorized as a traditional risk factor.¹ They may cause posttransplant diabetes mellitus, dyslipidemia, hypertension, and hyperhomocysteinemia, and studies involving withdrawal of these agents have generally shown improvement in parameters such as blood pressure and dyslipidemia.²

Traditional risk factors do not adequately explain coronary heart disease risk after kidney transplantation.³ Immunosuppressive agents could also play role as a nontraditional risk factor for cardiovascular events. They have potentially a direct adverse influence on the immunologic protective mechanisms in atherosclerosis. It was shown that a number of protective immune responses have also been identified. For example, one of the most important of these is carried out by the regulatory T cells, which are powerful inhibitors of atherosclerosis in several mouse models.⁴ Regulatory T cells inhibit the development of autoimmunity by controlling the activity of autoreactive T cells. If the function of regulatory T cells is compromised in hypercholesterolemic mouse models of atherosclerosis, the development of disease becomes much more aggressive.⁵ In addition, immunization of hypercholesterolemic animals with low-density lipoprotein (LDL) preparations reduces atherosclerosis, suggesting

that vaccination may represent a useful strategy for disease prevention or modulation.⁶ Antibodies against oxidized LDL have been demonstrated in atherosclerosis, which may be protective.⁷ Serum anti-oxidized LDL antibody titer is an independent predictor of cardiovascular mortality in a cohort of patients with end-stage renal disease.⁷ In another study revealed that because antibodies may protect or neutralize pathogens and immunogens, humoral immunity to oxidized LDL can reduce the incidence of atherosclerosis. The protective role of T-cell-dependent antibody was demonstrated in rabbits and mice immunized with oxidized LDL.⁸

In conclusion, immunosuppression in transplantation may cause deficient atheroprotective cellular and humoral immune reactivity. Nontraditional markers add a lot to explain the increased rate of cardiovascular disease in transplantation, especially effects by immunosuppression and renal transplantation. Accelerated atherosclerosis in transplantation probably due to both destructive immunologic forces, inflammatory activity, and adversely affected protective immunologic mechanisms targeting atheroantigens.

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REFERENCES

1. Ghods AJ. Risk factors profile and cardiovascular events in solid organ transplant recipients. *Iran J Kidney Dis.* 2012;6:9-13.
2. Marcen R. Cardiovascular risk factors in renal transplantation—current controversies. *Nephrol Dial Transplant.* 2006;21 Suppl 3:iii3-8.
3. Israni AK, Snyder JJ, Skeans MA, et al. Predicting coronary heart disease after kidney transplantation: Patient Outcomes in Renal Transplantation (PORT) Study. *Am J Transplant.* 2010;10:338-53.
4. Ait-Oufella H, Salomon BL, Potteaux S, et al. Natural regulatory T cells control the development of atherosclerosis in mice. *Nat Med.* 2006;12:178-80.
5. Nilsson J, Wigren M, Shah PK. Regulatory T cells and the control of modified lipoprotein autoimmunity-driven atherosclerosis. *Trends Cardiovasc Med.* 2009;19:272-6.
6. Hansson GK, Nilsson J. Vaccination against atherosclerosis? Induction of atheroprotective immunity. *Semin Immunopathol.* 2009;31:95-101.
7. Shoji T, Fukumoto M, Kimoto E, et al. Antibody to oxidized low-density lipoprotein and cardiovascular mortality in end-stage renal disease. *Kidney Int.* 2002;62:2230-7.
8. Shoenfeld Y, Wu R, Dearing LD, Matsuura E. Are anti-oxidized low-density lipoprotein antibodies pathogenic or protective? *Circulation.* 2004;110:2552-8.

Re: Elevated Serum Levels of Vitamin D in Infants With Urolithiasis

Dear Editor,

We have read with great interest a recently article by Fallahzadeh and colleagues¹ titled "Elevated serum levels of vitamin D in infants with urolithiasis" published in your most valuable journal. They focused on the role of the serum levels of vitamin D on the pathogenesis of urolithiasis in infants. The authors concluded that high serum levels of vitamin D may play an important role in the pathogenesis of renal stone formation, particularly in the infants with hypercalcemia.

Although hyperuricosuria and hyperoxaluria are two important metabolic risk factors in urolithiasis

among pediatric patients,² it is of interest that Fallahzadeh and colleagues¹ reported hyperoxaluria to be as low as 3% of their patients and they had no hyperuricosuria. However, hyperuricosuria has been reported in 2% to 10% of children and adolescents with metabolic predisposition to renal stone formation.²

Urinary stone is related with many complicated factors such as metabolic defects, genetic and environmental effects.^{3,4} Fallahzadeh and coworkers showed that 53% of their cases had at least one metabolic disorder.¹ It is of interest that serum levels of 25-hydroxyvitamin D₃ were also significantly