was 33 400 ng.h/mL, which persisted for 48 days. Oseltamivir was well tolerated in both of the patient groups. The researchers concluded that the 30-mg dose of oseltamivir given once weekly in patients on CAPD or after alternate sessions in patients on hemodialysis provides sufficient exposure to oseltamivir carboxylate to allow safe and effective anti-influenza treatment and prophylaxis.[3] In kidney transplant patients, oseltamivir has no interactions with cyclosporine, tacrolimus, mycophenolate mofetil, and steroids, and it can be safely used. The drug is usually well tolerated; however, side effects like dizziness and gastrointestinal disorder may be seen at higher doses.

Zanamivir is another neuraminidase inhibitor. The recommended dosage of zanamivir by oral inhalation is 10 mg, twice a day, for 5 days. Less than 20% of the dose is absorbed systemically, and 90% of the absorbed drug is excreted unchanged in urine. There are no data on the pharmacokinetics of zanamivir after oral inhalation in patients with kidney failure. However, given the good tolerance after daily intravenous dosages as high as 1200 mg and the limited systemic absorption after oral inhalation, the increased drug exposure for patients with kidney failure is not considered clinically significant. Therefore, for orally inhaled zanamivir, no dosage adjustment is required in patients with kidney impairment. Because the drug is almost not absorbed, it is unlikely to be removed by hemodialysis to a significant extent. It may thus be administered before or after the session on hemodialysis without significant influence on its pharmacokinetics. Side effects include headache, cough and nasal and throat discomfort.[4]

To conclude, with the pandemic of H1N1, nephrologists are bound to encounter this infection in their set of patients. Adequate preventive measures should be instituted before the infection sets in. A thorough knowledge of dosing schedule of oseltamivir and zanamivir is a must to avoid undesirable side effects.

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Significance of Human Leukocyte Antigen Typing in Kidney Transplantation

Time to Revisit Old Strategies?

SIR,

Owing to the significance of immunological mechanisms in the human body, an ideal transplantation of body components is only feasible between identical twins, and in the absence of immunosuppression, it is the only possible model. In other conditions, both humoral and cellular immune responses will lead to immunological confrontation of the host body and the grafted cells, resulting in rejection episodes and allograft failure.

The human leukocyte antigen (HLA) system represents important immunological functions, characterizing it as a fundamental part of immune surveillance inducing definite immune reactions to microbial pathogens as well as malignant cells. Thus, as it is presumable, transplantation of donor organs with HLA systems similar to those of the

recipients' is more successful than one that is not matched. However, despite all advantages of implementing HLA matching programs in transplantation settings, the issue is hardly feasible in the daily practice. Maybe the most important obstacle existing in this subject is the shortage of organs available for transplantation, which has made it hard to find HLA-matched donors for each of the recipients. In fact, when a patient with organ failure finds a potential donor, this is very hard to ask him/her to wait for another donor with matched HLA. On the other hand, the very high number of HLA antigens as well as the extreme diversity existing on this system in humans has made the problem more complicated.

The introduction of new potent immunosuppressants has revolutionized the transplantation practice by resolving several of the previously considered tough problems in this era. Recent evidence has shown that nowadays, HLA matching for organ transplant recipients with their potential donors is no longer considered as an essential issue. According to a recent study conducted in Shahid Hasheminejad Hospital,[1] the investigators failed to find any differences between outcomes of recipients of well-matched HLA-DR system allografts and those of transplantations with no HLA compatibility. In other words, using the new immunosuppression strategies, HLA matching has lost its significance in the context of donor-recipient selection for kidney transplantation; however, new areas of understandings about the other aspects of relevance to HLAs on the outcome of kidney transplantation have come into view.

In a recent article by Azmandian and colleagues,[2] a multicenter analysis of data was reported to evaluate the impact of HLA characteristics of kidney transplant recipients on the incidence of malignancies after kidney transplantation. The authors found HLA-CW4 represented as a risk factor of the development of Kaposi sarcoma. Similar findings have also been found in other studies.[3] All these documents show that even with the new advances in immunosuppression, there are several new areas for understanding of the potential significance of HLA in transplantation medicine. However, the new situation may urge us to re-evaluate our old policies towards the issue.

In Iran, routine HLA typing is performed for donors and their related recipients; however, the results are not usually used in the clinical practice. No need to say that this policy induces significant financial strains on the limited health resources which can be more precisely fund. But, as it was mentioned above, HLA typing is still of interest, most especially in research issues; therefore, we may not thoroughly exclude it. According to all the facts described above, we propose to fund the financial resources, currently used for HLA typing, to establish a blood and tissue bank from all our recipients and donors. This bank needs nitrogen liquid freezers to save the samples for long times. Having these samples, whenever we like, we can more precisely make laboratorial analyses, including virological and immunological evaluations on specific samples whose recipients developed specific problems. This not only saves a significant amount of finances, but also can provide us the opportunity to perform more specific laboratorial evaluations—t he newly introduced evaluations—on target patients, in order to find risk factors associated with particular conditions and diseases.

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