

Letters

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Selection of Kidney Recipients

To the Editor.—We have read with interest the article by Starzl et al¹ about a multifactorial system for the selection of recipients of cadaver donor kidneys. The article is the first to describe a widely applicable system for organ distribution. The described system gives points for time on the waiting list (rank order, ten points for the patient longest on the list), HLA antigen match (two points for each matched antigen), panel reactive antibody (PRA) number (one point for each 10%), medical emergency (zero to ten points), and logistical factors (zero to six points). The authors argue against a system that uses antigen match as the sole or major criterion of recipient selection. We believe that even their system gives too much weight to antigen matching.

With the exception of a six-antigen match, the value of HLA matching is controversial. Recently, Niblack et al, at the 1987 meeting of the American Society of Transplant Physicians, presented data on 1600 cadaver transplants done by members of the Southeastern Organ Procurement Foundation. There was no significant difference in graft survival time for patients receiving cadaver kidneys matched for one to five antigens. In addition, HLA antigens are better defined in the white population. Patients from minority groups, in whom HLA antigens are less well defined, will be penalized by a system that gives so much emphasis to matching. Finally, the delay in transplanting a kidney to a better-matched recipient in another part of the country may negate any supposed benefit of matching.

Using the point system as defined by Starzl et al, we have created a possible scenario in which we believe the distribution of kidneys would be wrong. In our example (Table), ten patients matched a potential kidney. If the system of Starzl et al is used, patient 2 (on the waiting list for nine months) would be given priority over patient 1 (three years on the list) on the basis of a three vs one antigen match. Patient 3 (on the list eight months) has the same

Hypothetical Case Using Multifactorial System for Selection: Ten Potential Recipients of a Cadaver Kidney

Waiting Time, mo	Patient No.	Rank Order Waiting Time	No. of Antigens Matched	No. of Points			Total
				Panel Reactive Antibody Number	Medical Urgency	Logistical Factors	
36	1	(10/10) × 10 = 10	1 × 2 = 2	99% = 10	0	0	20
9	2	(9/10) × 10 = 9	3 × 2 = 6	90% = 9	0	0	24
8	3	(8/10) × 10 = 8	4 × 2 = 8	60% = 6	0	0	22
7	4	(7/10) × 10 = 7	2 × 2 = 4	10% = 1	0	0	12
6	5	(6/10) × 10 = 6	0 = 0	80% = 8	0	0	14
5	6	(5/10) × 10 = 5	0 = 0	30% = 3	0	0	8
5	7	(5/10) × 10 = 5	1 × 2 = 2	10% = 1	0	0	8
3	8	(3/10) × 10 = 3	4 × 2 = 8	20% = 2	0	0	23
2	9	(2/10) × 10 = 2	0 = 0	90% = 9	0	0	11
1	10	(1/10) × 10 = 1	1 × 2 = 2	10% = 1	0	0	4

number of points as patient 1. As one goes down the list, patient 5 would be given priority over patient 4 on the basis of PRA number alone, although patient 4 was on the list longer and was a four-vs zero-antigen match.

Our transplant program has been in existence for more than 20 years. As a result of previous transplants, blood transfusions, or pregnancies, a high percentage of patients have a high PRA number. Many of these patients wait for prolonged periods of time before a kidney can be found for them. We have used time on the waiting list as our major criterion for allocation of kidneys, and a large number of patients have successfully received a transplant (with both high and low PRA numbers) without regard to HLA matching. The overall one-year graft survival for first cadaver transplant recipients receiving cyclosporine immunosuppression therapy in our program is 85%; for the highly cytotoxic patient it is 90%.

We believe that significant modifications will be needed to make the proposed system truly equitable. Time awaiting transplantation is an objective, undisputed criterion by which kidneys should be distributed. It incorporates the truly cytotoxic patients, since they wait the longest. If PRA number is to be used as a criterion, there must be clear, agreed-on criteria by which the percentage figures are arrived at. The sharing of six-antigen matched kidneys should be required. Since lesser degrees of matching are of "disputed" value, they should receive

no points. By incorporating such changes, a system could be created that is simple, easy to understand, and fair to all.

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1. Starzl TE, Hakala TR, Tzakis A, et al: A multifactorial system for equitable selection of cadaver kidney recipients. *JAMA* 1987;257:3073-3075.

In Reply.—Drs Matas and Tellis merely have extended our argument that waiting time and other factors should be given more weight than antigen matching for kidney allocation. However, we do not believe that matching should be ignored altogether and for that matter

Guidelines for Letters

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neither do Matas and Tellis, as witnessed by their acceptance of six-antigen (full-house) matching.

Their seemingly inequitable scenario is based on "nonsense" data. When a highly sensitized patient finally achieves a negative cross match, it is almost always found that good antigen matching also has been achieved, particularly at the A and B loci. If not, either the cross match test or the antigen typing is apt to be an error.

Thus, it is not credible that their longest-waiting patient, with a 99% PRA, should have had only one antigen match, whereas it is understandable that their highly sensitized patients who had waited for nine and eight months, respectively, should have had three and four antigens matched. The fact that their highly sensitized patients, No. 5 and 9, also had negative cross matches despite zero antigen matches would be a further indication of inaccurate tissue typing or cross matching.

We congratulate Matas and Tellis on their fine record.

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To the Editor.—In his recent editorial, Dr Rapaport¹ expressed serious concerns about federal initiatives in organ transplantation. He suggested that the current efforts of the transplantation community to provide transplantation in a scientifically sound, fair, and accountable fashion might be significantly hindered by governmental interference. We would like to present the somewhat differing viewpoint of the leadership of the American Society of Transplant Physicians and the American Society of Transplant Surgeons on these issues.

The current shortage of cadaveric organs, which has resulted from the explosive increase in transplants performed, has led to public concern about the equity of organ distribution. In response to this concern, with the strong urging of the transplant community, Congress in 1984 passed the Transplant Act, which mandated establishment of a national organ procurement and transplantation network (OPTN), created a task force to make recommendations on a number of issues, and provided support for local organ retrieval agencies.

The task force was consciously designed to provide input from a wide spectrum of the transplant community. Included among its 21 members were six transplant surgeons and physicians and an expert in histocompatibility. Its most important recommendations were

that organs retrieved from cadaveric donors be considered a public resource; that transplant professionals should hold them in "prudent stewardship" for and be accountable to the public; that the public should have a major voice in the governance of the OPTN; and that cadaveric organs should be distributed to patients according to scientific principles. The vast majority of the transplant community would endorse these principles.

The Office of Organ Transplantation then invited applications to establish the OPTN in accordance with the design recommended by the task force. The United Network for Organ Sharing (UNOS), with the overwhelming support of the transplant community, applied for and won this contract, knowing that it would require a change in its governance. The contract also requires that the board of UNOS establish criteria both for membership in the OPTN and for the distribution of cadaveric organs, but does not stipulate what these criteria should be.

The membership criteria adopted by UNOS do not mention numbers of transplants or years of experience, so as to be exclusive, but stipulate only minimal training requirements for professional personnel so as to guarantee quality. The role of histocompatibility matching in assigning cadaveric kidneys to recipients is a matter of considerable current scientific controversy. Therefore, sharing of kidneys on the basis of histocompatibility matching is required by UNOS only for perfect six-antigen matches, less than 5% of cadaveric kidneys. Further, there is persuasive evidence that a cold storage time of up to 36 hours does not adversely affect a transplanted kidney.² Therefore, the concern that kidneys will deteriorate in the course of shipment to a distant recipient is misplaced. Finally, it should be noted that UNOS has adopted the criteria proposed by Starzl et al³ as the principal basis for assigning organs to recipients on the local level, as the first step to a consistent, objective, defensible, and scientifically sound organ distribution system. The way in which the issue of organ allocation has been handled by UNOS should allay any fear that "bureaucrats" are dictating transplant policy.

Dr Rapaport expresses concern about government-mandated restrictions on transplantation in foreign nationals. Certainly, it runs contrary to our medical traditions to exclude patients on the basis of nationality. However, the public has expressed great concern that wealthy nonresident aliens have received scarce organs

when resident Americans were denied them. While there has been no definite resolution of this issue, the majority of transplant professionals accept the legitimacy of public input into decisions about the use of this scarce public resource.

In sum, we believe that the transplant community has benefited from the recent federal initiatives in transplantation and from our own better-coordinated efforts through UNOS to ensure equity and quality of transplant services. Transplantation uniquely requires the participation of the public, and we welcome the new opportunity to provide a forum for the public's concerns.

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1. Rapaport FT: A rational approach to a common goal: The equitable distribution of organs for transplantation. *JAMA* 1987;257:3118-3119.

2. Ito T, Iwaki Y, Terasaki PI: Preservation, in Terasaki PI (ed): *Clinical Transplants 1986*. Los Angeles, UCLA Tissue Typing Laboratory, 1986, pp 299-310.

3. Starzl TE, Halkala TR, Tzakis A, et al: A multifactorial system for equitable selection of cadaveric kidney recipients. *JAMA* 1987;257:3073-3076.

Kartagener's Syndrome With Normal Spermatozoa

To the Editor.—Kartagener's syndrome (chronic sinopulmonary symptoms and situs inversus) was shown to be a part of the immotile-cilia syndrome (chronic sinopulmonary symptoms and male sterility) when Afzelius and coworkers demonstrated that males with the immotile-cilia syndrome had immotile (or dysmotile) respiratory cilia and spermatozoa and that 50% of cases of the immotile-cilia syndrome had situs inversus.^{1,2} The immotility is attributed to an ultrastructural defect of the respiratory cilium and sperm tail.¹ The inheritance is autosomal recessive. Absence of frontal sinuses is a recognized association.²

This is to my knowledge the second report of a case of Kartagener's syndrome with normal spermatozoa. The patient had chronic sinopulmonary symptoms, situs inversus, and absent frontal sinuses, while his spermatozoa had normal motility, ultrastructure, and fertilizing capacity. Thus, the entity can be regarded as a new subgroup of the immotile-cilia syndrome.

Report of a Case.—A bachelor, aged 26 years, presented at the outpatient department of the Medical Mission, Tiruvella, India, complaining of chronic