

## The Influence of Organ Supply and Demand Pressures upon the "Primum Non Nocere" Principle in Living-Donor Transplantation

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"Primum non nocere:" Above all, do no harm (1).

Almost a decade ago, at the International Congress of the Transplantation Society held in Helsinki in 1986, the authors held a debate on the issue of utilization of living-donor organs for kidney transplantation. One of us (FTR) upheld the pro side (1), summarizing the large body of objective data which point to the safety of living-donor kidney transplantation, and to the major benefits which can be accrued by the donor in terms of enhanced feelings of self-esteem and self-worth at the conclusion of this heroic act. On the con side, Starzl (2) reviewed the broad spectrum of potential complications and even mortality (<0.1%) which may result from the donor operation, and noted how, in spite of the most stringent precautions to protect the donor, this operation can never be totally safe for the donor. Starzl reviewed, in particular, the potentially devastating effects of a living-organ donor tragedy upon the donor's family, the operating surgeon, and the transplantation team. The probability that the living-organ donation effort might detract from the energy pool available for cadaver-donor organ retrieval appeared to constitute an additional worrisome component of this effort. Both authors agreed on the need to ensure that every effort be made as to the sincerity and spontaneity of the donation, and that the donation could not be a consequence of family pressure of financial transplantation. The large and steadily increasing population of patients with end-stage renal disease maintained on hemodialysis, who are exposed to a significantly higher mortality risk (21% per yr) while on dialysis (3) appeared to be the primary factor in this equation. When compared with the immeasurably better quality of life produced by renal transplantation, with a far lower mortality, the security of donor organs from brain-dead donors appeared to constitute an irrefutable argument in favor of living-donor transplantation. Recent progress in clinical transplantation has made it possible to extend the utili-

zation of living donors to pancreatic (4) and liver transplantation (5) to save the lives of desperately ill patients - often children, who lack the alternative option of hemodialysis. This has further complicated the equation.

In the intervening years, the cascade of arguments used by one of us (FTR) to support living-organ donation has evolved and prompted a review of this position on living donation. As more years have passed, and the transplant team's experience has evolved, the pro position seems to have become ever less attractive. This is not to say that this author (FTR) believes that living-organ donation should be eliminated altogether. We are both (FTR and TES) convinced, however, that the procedure must be planned with the utmost circumspection and respect and with the fullest possible information given to the prospective donor regarding all potential risks and hazards. These involve not only the possible failure of the transplanted organ in the recipient but also the wide spectrum of risks associated with the operative procedure. These risks escalate geometrically for segmental pancreas, liver, or lung donations. Indeed, the latter procedures involve extremely complicated surgical techniques and are fraught with multiple potential complications (4,5). Although extremely small for kidney transplantation, and probably higher for the removal of segments of other vital organs, the incidence of donor death must be considered and reviewed in the greatest detail possible with each potential donor and the staff. The cumulative worldwide living-donor mortality for kidneys is below 0.1% (3), but this mortality may be as high as 1% in donors of other organs. For the one donor who has succumbed to his supreme act of generosity, the mortality rises to 100%. The authors submit that these concerns and risks may be at the very least as relevant as the pressure of organ scarcity which constitutes the central motivation for living-organ transplantation.

While there is no absolute justification for an elimination of the practice until alternative and equivalent sources of organs can be found, the authors are concerned that much of the effort spent on living-organ transplantation may unwittingly interfere with urgently necessary progress in the retrieval and sharing of cadaver-donor organs, and in the investigative efforts of searching for potential animal sources of life-saving organs, ie, xenotransplantation (6). The authors admire the courage and faith of the surgical teams and normal donor volunteers who are involved in living-organ donation. We are deeply concerned, however, with the potential haz-

ard of proliferation of this part of clinical transplantation at the expense of other equally important therapeutic avenues, as well as the potentially devastating effects of a tragic outcome upon the donor, the donor's family, and the surgical team involved in the procedure. Failed living-organ procedures may also have a major deleterious effect upon the perception of organ donation by the public at large, thereby exerting a counterproductive influence upon the central priority of the transplantation community, ie, to increase retrieval rates of cadaver-organ donation.

### REFERENCES

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