

Expanding Donor Criteria: Is it Safe?

Anne Barkman

The University of Kansas School of Nursing

About the author:

Anne Barkman is from Leawood, Kansas. She was an academic honor roll recipient for Fall 2010, Spring 2011 and Fall 2011 semesters. After graduation, she plans to start her nursing career on the Medical Intensive Care Unit at the University of Kansas Medical Center. Her future plans involve returning to school for her Doctorate of Nursing Practice and involvement in nursing education. She is actively planning a trip to Africa where she hopes to climb to the summit of Mt Kilimanjaro. She wishes to thank her parents and siblings for their constant encouragement and for their ability to bring humor into her life.

Introduction

With technological advances saving lives daily, one obstacle still plagues the medical community- organ shortages. Over 112,000 patients await a new organ in the United States alone and the numbers keep growing (Transplant trends, 2011). Between 2001 and 2010 this disparity between the number of patients on the waiting list and the number of organ donors caused over 7,000 people to lose their lives every year (Death removals, 2011). Although modern medicine can keep patients awaiting a new organ living longer, the only way to save lives is to increase the number of available organs. One way to solve the organ shortage is to use organs that the medical community would have discarded before, or put another way, marginal organs.

Donors previously thought unable to provide organs are now being considered to decrease the disparity between the waiting list and the number of organs available. “Marginal or extended criteria donors (ECD) are defined as those with a greater risk of initial poor function or graft failure” (Gastaca, 2009, p. 975). Although extended organ criteria are more commonly accepted now, there are benefits and risks to consider. Patients awaiting organs now have another choice to make, is a marginal organ worth the risk? It is important to both understand the implications of the organ shortage and the benefits and risks of using marginal donor organs.

Literature Review

Many factors are considered when choosing an organ. Prolonged organ ischemic time, an individual’s age, and non-heart beating donors (NHBDs) are just a few examples of factors that play into a surgeon’s decision to use an organ (Busuttill & Tanaka, 2003, p. 651). Time between the preservation of the graft and the re-warming of the graft is considered ischemic time. The ischemic time is normally a non-negotiable factor when choosing organs. “Grafts with more than 14 hours of cold ischemia have been associated with a two-fold increase in preservation damage”

(Busuttil & Tanaka, 2003, p. 652). However, the transplant community has made ischemic time a priority in an effort to increase the number of donor organs available.

“Donor age has been steadily increasing over the past decade” (Busuttil & Tanaka, 2003, p. 651). Before, organs over fifty years old were “associated with poor graft outcomes” and now organs over 60 years are being used (Busuttil & Tanaka, 2003, p. 651). Controlled NHBDs are organs taken after “planned withdrawal of life support, most often in an operating room, with a donor surgical team present” (Busuttil & Tanaka, 2003, p.653). Uncontrolled NHBDs “either fail cardiopulmonary resuscitation and/or arrive dead at the hospital” (Busuttil & Tanaka, 2003, p. 653). In the past, only controlled NHBDs were considered viable for donation. In a study of twenty-four recipients, of both controlled and uncontrolled NHBDs, a survival rate of 93% in one year has opened up the possibility of using uncontrolled NHBDs as well (Busuttil & Tanaka, 2003, p. 653). Seemingly, these singular risks can be minimal but it is rare to have one risk factor in a donor organ.

Beyond general elements, organ specific issues are also considered, such as the fatty liver and a kidney with a decreased filtering rate. The increase in obesity in the United States has caused the liver transplant community to “expect a further increase in the prevalence of steatosis” (Gastaca, 2009, p. 976). In the past, livers with less than thirty percent fat have been considered no different than non-fatty livers (Gastaca, 2009, p. 976). In contrast, livers, with greater than sixty percent fat, have been discarded because they are associated with higher mortality rates (Gastaca, 2009, p. 976). To combat this problem in the liver transplant community, matching donors with recipients has never been more important. “Grafts with moderate steatosis can be safely used in low risk patients” and they are passed over in patients with higher MELD scores (Mullhaupt, Dimitroulis, Gerlach & Clavien, 2007, p.S61). The kidney

transplant community has also made an effort to combat the shortage of organs. Kidneys with lower creatinine clearance rates have been accepted but depend heavily on the histologic condition in the recipient (Pascual, Zamora & Pirsch, 2008, p. 558). “If histological evaluation is performed before the kidney allocation”, there is a better chance of graft survival (Pascual et al., 2008, p. 558). In the end, the organ specific criteria have changed from wasting organs considered unfit in the past to using every resource to match donors and recipients for the best outcome.

With a waiting time of over three years for over 36,000 patients, every possible organ needs to be assessed (Organ by waiting, 2011). “The use of the high risk, so-called marginal or expanded donors, may be the simplest way to increase the donor supply” (Gruttadauria et al., 2005, p. 2568). The use of these organs can be successful. One study showed that a cold ischemic time of less than 8 hours had the long term graft function “equivalent in donors greater than 50 years of age” (Busuttil & Tanaka, 2003, p. 652). The marginal donor also opens up possibilities for using donors with viral infections, such as hepatitis. In one report, the hepatitis positive recipient had a greater survival rate when a hepatitis positive graft was used (Gastaca, 2009, p.977). Furthermore, transplantation with an ECD for kidney patients may be more beneficial for quality of life, especially in elderly patients. “Mortality is decreased with an ECD kidney transplant compared with dialysis therapy” (Pascual, Zamora, & Pirsch, 2008, p. 553). Another group of patients that would benefit from ECD are diabetes patients. Diabetes patients “receiving an ECD kidney transplant after waiting 2 years showed similar life expectancy compared with waiting 4 years” for a standard kidney (Pascual et al., 2008, p. 574). Depending on the circumstance of the recipient, marginal donors seem the best solution for organ donation disparity.

With every new medical practice, there are risks to be considered. Although moderate steatotic donors are being considered, graft function in the first three days is impaired and can cause death (Busuttil & Tanaka, 2003, p. 653). Also, fatty livers are not helpful and should not be considered for patients with higher MELD scores. On report suggests that “early post-transplant survival was significantly reduced when moderately steatotic grafts were used in high-risk patients” (Gastaca, 2009, p. 976). McCormack showed that using steatotic livers presents a higher risk of renal failure that would require hemodialysis in the future (McCormack, 2007, p. 944).

For kidney patients, transplantation has limited the morbidity of longstanding dialysis but in the long term, these patients have a shorter graft life (Pascual, Zamora & Pirsch, 2008, p. 579). Furthermore, one group of patients that does not benefit from the marginal organ is retransplanting patients. The morbidity of ECD retransplantation was equal to remaining on the waiting list (Pascual, Zamora & Pirsch, 2008, p. 572). The last risk to consider when receiving a marginal organ is finance. Patients that received steatotic grafts had much longer ICU and hospital stays and increased medical costs overall (McCormack et al., 2007, p. 944). Depending on the patient situation, the ECD graft can be dangerous and unnecessary.

Conclusion

The use of marginal donors has both benefits and risks. The use of these organs is still too new to call it safe. Not enough research has been conducted to speak to the legal and ethical aspects of these organs. Although the medical community is making strides to match donors and recipients, is it considered maleficent to knowingly give a patient a sub-par organ? Two different ways have been suggested to solve this dilemma. First, “it would be reasonable for transplant centers that use marginal donors to establish a ‘secondary list’ of recipients who might be

suitable for a marginal graft” (Busuttil & Tanaka, 2003, p. 658). Second, restrict marginal organs in programs with short waiting times and allocate those organs to programs with long waiting periods (Pascual, Zamora & Pirsch, 2008, p. 574). Even with these suggestions, the patient must be informed of the dangers of using these risky organs.

The nursing role must also change with the use of ECD in transplantation. Education is first and foremost in giving the patient the ability to make this difficult decision. Even the decision to transfer to a marginal donor list can be daunting because it is still an unknown practice. Also, the nurse must also encourage the use of advance directives. The outcome of these transplants is not predictable and the patient needs to be prepared. I believe that with optimal donor care and precise matching, using marginal donor organs is more beneficial than detrimental to the transplant community.

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