

# "Racial Disparities in Renal Transplantation: A Review"

**Dr. Charles S. Modlin, Jr., M.D., MBA**  
and  
**Dr. Carlumandarlo E.B. Zaramo, Ph.D., M.Sc.**

**Cleveland Clinic Glickman Urological & Kidney Institute**  
**Minority Men's Health Center**  
9500 Euclid Avenue, Desk Q-10  
Cleveland, Ohio 44195, USA



**Dr. Charles S. Modlin, M.D., MBA**, Founder & Director, Minority Men's Health Center, Section Renal Transplantation, Cleveland Clinic  
Board Commissioner Ohio Commission on Minority Health

**Dr. Carlumandarlo E.B. Zaramo, Ph.D., M.Sc.** Genetics Research Associate, Post Doctoral Correspondent, Minority Men's Health Center, Glickman Urologic & Kidney Institute, Cleveland Clinic.

**Key Words:** Renal Transplantation, Health Disparities, African Americans, Race, Ethnicity

## **INTRODUCTION TO RACIAL HEALTH DISPARITIES**

Racial health care disparities are represented by measurable and significant differences in the race-specific incidence of certain diseases as well as their associated morbidity and mortality rates <sup>1</sup>. In the United States, African-Americans suffer from a significantly greater disproportionate burden of disease and morbidity when compared to their Caucasian-American counterparts, contributing to the fact that African-Americans have documented life expectancies shorter than Non-Hispanic whites.

## **KIDNEY FAILURE AND TRANSPLANTATION**

African-Americans and other racial/ethnic minority populations are disproportionately affected by End-Stage Renal Disease (ESRD). African-Americans comprised over 30% of all patients treated for ESRD in the U.S. <sup>2</sup> Other racial minorities, including Hispanics/Latino, Pacific Islanders, and Native Americans also appear to be at higher risk for development of renal failure.<sup>2-3</sup>

Diabetes and hypertension are the leading cause of ESRD.<sup>2-4</sup> Hypertension is more prevalent among black adults (33%) compared to whites (20%), and there is evidence that supports a genetic predisposition towards hypertension among African Americans.<sup>5</sup> Environmental factors, such as high-salt intake, urban living, poverty, and stress, may also play a role. Untreated or poorly controlled hypertension in racial/ethnic minorities contributes to the six times greater incidence of kidney failure from hypertension in minorities compared to Caucasians.<sup>5-6</sup>

## **RACIAL DISPARITIES IN ACCESS TO KIDNEY TRANSPLANTATION**

Despite higher rates of Chronic Kidney Disease (CKD) and ESRD, research has demonstrated that African Americans do not enjoy equivalent access to renal allograft transplantation when compared to Caucasians. Blacks are less likely to be referred for evaluation, be placed on a waiting list, or actually receive a donor kidney. Even after securing placement on a transplant waiting list, African-Americans will wait two to four times longer on those lists than Caucasians <sup>9</sup>.

The current organ allocation system which is weighted on the degree of genetic matching The Human Leukocyte Antigen Matching System (HLA) between the deceased donor and the prospective recipient, has placed African Americans at a distinct disadvantage with respect to access to kidneys from deceased donors because Caucasian-Americans awaiting for a kidney are more likely to share common genetic traits with the donor kidneys available for transplantation, 88-90% of which are from Caucasian-American donors <sup>2,9</sup>. However, the current allocation system is being replaced by a system by which the allocation of kidneys for transplantation is more heavily weighted upon the time duration that a particular patient has been placed on dialysis.<sup>7,9</sup>

### **RACIAL DISPARITIES IN RENAL TRANSPLANTATION OUTCOMES**

Multiple studies have confirmed that African-Americans are at high risk for early graft rejection following renal allograft transplantation and have confirmed that African-American race is a significant independent predictor of early renal graft loss even when other potential negative factors are statistically controlled.<sup>4</sup> Factors that may contribute to the lower long-term renal allograft survival observed among black patients also include delayed graft function, co-morbid diseases (such as chronic hypertension), noncompliance (with medications or follow-up) and ineffective immunosuppressive therapy.<sup>8-9</sup>

### **CONCLUSIONS**

African-Americans and other racial/ethnic minority populations are disproportionately affected by kidney disease and kidney failure. Disparities in access to kidney transplantation have been observed along racial lines. Changes in the kidney organ allocation policy to reflect days spent on dialysis will potentially result in improved access to organ allocation to African-Americans and other racial/ethnic minorities. Disparities exist with respect to outcomes of kidney transplantation in African-Americans <sup>9</sup>. African-Americans need to be aggressively educated regarding options for kidney transplantation and organ donation, including

options for and preferential outcomes and benefits of receiving a kidney transplant from a living donor, living related or non-related. In addition, more African-Americans should be encouraged to register on organ donor registries to become organ donors at the time of their death <sup>9</sup>. Patients in need of kidney transplants should also be made aware of programs such as the National Kidney Registry <sup>2,7,8,9</sup> program whereby incompatible living donors that they may have can instead donate their kidney to a third party on the kidney waiting list and in exchange receive a living kidney from someone else's living donor with whom they are incompatible <sup>2,7,9</sup>.

## REFERENCES

1. Merriam-Webster Online Dictionary copyright © 2006 by Merriam-Webster, Incorporated. Editor, Merriam-Webster Inc., P.O. Box 281, Springfield, MA 01102, Produced in the United States of America. All rights reserved.
2. United Network Organ for Sharing Data Current: Monday, November 17<sup>th</sup>, 2014: Database (UNOS) Organ Procurement and Transplantation Network (OPTN). <http://www.unos.org/whatWeDo/research.asp> . UNOS Data Request, Post Office Box 2484, Richmond, VA 23218 UNetsm, the transplant information database, contains transplant information that pertains to transplant candidates on the waiting list, donor/recipient matching, deceased and living donors, histocompatibility, and transplant recipients. , <http://www.unos.org>
3. Callender, Clive. O., P.V. Miles, Margruetta B. Hall, and Sherilyn Gordon. Blacks, whites, and kidney transplantation: A disparity! But why and why won't it go away? *Transplantation. Rev.*, vol. 16, No. 3 (July), 2002. Pp. 163-176.
4. Epstein AM, Ayanian JZ, Keogh JH, Noonan SJ, Armistead N, Cleary PD, Weissman, JS, David-Kas dan JA, Carlson D, Fuller J, Marsh D, and Conti RM, Racial disparities in access to renal transplantation--clinically appropriate or due to underused or overuse? *N England J. Med.* 2000 Nov. 23; 343(21): 1537-44, 2 p preceding 1537.

5. Klassen AC, Hall AG, Saksvig B, Curbow B, Klassen DK. Relationship between patients' perceptions of disadvantage and discrimination and listing for kidney transplantation. *American J Public Health*. 2002 May; 92 (5): 811-7.
6. Rozon-Solomon M, Burrows L. " Tis better to receive than to give: the relative failure of the African American community to provide organs for transplantation. *Mt. Sinai J. Med*. 1999 Sep; 66 (4): 273-6.
7. OPTN/UNOS Approves New Deceased Donor Kidney Allocation. Dialysis Patient Citizens, 1012 14th Street, NW, Suite #905 Washington, DC 20005. Toll free: 1-866-877-4242. Fax: 888-423-5002. Email: [dpc@dialysispatients.org](mailto:dpc@dialysispatients.org) Policy.<http://dialysispatients.org/newsletters/optnunos-approves-new-deceased-donor-kidney-allocation-policy>. © 2014 Dialysis Patient Citizens Inc. All rights reserved. Unauthorized use prohibited. The information contained in this website is not a substitute for medical advice or treatment, and DPC recommends consultation with your doctor or healthcare professional. DPC is a 501 (c)(4) non-profit organization governed by dialysis patients ®.
8. Zaramo, CEB., and Modlin CS, "THE ASSESSMENTS OF RACIAL HEALTH IN RENAL TRANSPLANTATION". *American Journal of Kidney Disease*. 2006 April; 47(4): Page A-14: 178: The National Kidney Foundation 2006 Spring Clinical Meetings Accepted Physician Abstracts of *American Journal of Kidney Disease (AJKD)*. U.S. Renal Data System, USRDS 2001-2005 Annual Data Report: <http://www.usrds.org/adr.htm> , Coordinating Center, 914 South 8th Street, Suite D-206, Minneapolis, MN 55404, (612) 347-7776, 1-888-99 USRDS, [usrds@usrds.org](mailto:usrds@usrds.org)
9. Modlin CS Jr., Alster JM, Saad IR, Tiong HY, Mastroianni B, Savas KM, Zaramo CE, Kerr HL, Goldfarb D, Flechner SM. Renal transplantations in African Americans: A Single-Center Experience of Outcomes and Innovations To Improve Access and Results. *Urology*. 2014 Jul;84 (1):68-76.