# Research Literatures of Dialysis in America

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**Abstract:** In medicine, dialysis is a process for removing waste and excess water from the blood and is used primarily as an artificial replacement for lost kidney function in people with kidney failure. Dialysis may be used for those with an acute disturbance in kidney function or progressive but chronically worsening kidney function—a state known as chronic kidney disease stage 5. The latter form may develop over months or years, but in contrast to acute kidney injury is not usually reversible and dialysis is regarded as a "holding measure" until a kidney transplant can be performed or sometimes as the only supportive measure in those for whom a transplant would be inappropriate. The kidneys have important roles in maintaining health. When healthy, the kidneys maintain the body's internal equilibrium of water and minerals. The acidic metabolism end-products that the body cannot get rid of via respiration are also excreted through the kidneys. The kidneys also function as a part of the endocrine system, producing erythropoietin and calcitriol. Erythropoietin is involved in the production of red blood cells and calcitriol plays a role in bone formation. Dialysis is an imperfect treatment to replace kidney function because it does not correct the compromised endocrine functions of the kidney. Dialysis treatments replace some of these functions through diffusion and ultrafiltration. Hemodialysis is the most common method used to treat advanced and permanent kidney failure. Since the 1960s, when hemodialysis first became a practical treatment for kidney failure, we've learned much about how to make hemodialysis treatments more effective and minimize side effects. In recent years, more compact and simpler dialysis machines have made home dialysis increasingly attractive. However, even with better procedures and equipment, hemodialysis is still a complicated and inconvenient therapy that requires a coordinated effort from your whole health care team, including your nephrologist, dialysis nurse, dialysis technician, dietitian, and social worker. The most important members of your health care team are you and your family. By learning about your treatment, you can work with your health care team to give yourself the best possible results, and you can lead a full, active life. This article introduces recent research reports as references in the related studies.

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**Key words:** dialysis; America; cell; life; research; literature

## Introduction

In medicine, dialysis is a process for removing waste and excess water from the blood and is used primarily as an artificial replacement for lost kidney function in people with kidney failure. Dialysis may be used for those with an acute disturbance in kidney function or progressive but chronically worsening kidney function—a state known as chronic kidney disease stage 5. The latter form may develop over months or years, but in contrast to acute kidney injury is not usually reversible and dialysis is regarded as a "holding measure" until a kidney transplant can be performed or sometimes as the only supportive measure in those for whom a transplant would be inappropriate. The kidneys have important roles in maintaining health. When healthy, the kidneys maintain the body's internal equilibrium of water and minerals. The acidic metabolism end-products that the body cannot get rid of via respiration are also excreted through the kidneys. The kidneys also function as a part of the endocrine system, producing erythropoietin and calcitriol. Erythropoietin is involved in the production of red blood cells and calcitriol plays a role in bone formation. Dialysis is an imperfect treatment to replace kidney function because it does not correct the compromised endocrine functions of the kidney. Dialysis treatments replace some of these functions through diffusion and ultrafiltration. Hemodialysis is the most common method used to treat advanced and permanent kidney failure. Since the 1960s, when hemodialysis first became a practical treatment for kidney failure, we've learned much about how to make hemodialysis treatments more effective and minimize side effects. In recent years, more compact and simpler dialysis machines have made home dialysis increasingly attractive. However, even with better procedures and equipment, hemodialysis is still a complicated and inconvenient therapy that requires a coordinated effort from your whole health care team, including your nephrologist, dialysis nurse, dialysis technician, dietitian, and social worker. The most important members of your health care team are you and your family. By learning about your treatment, you can work with your health care team to give yourself the best possible results, and you can lead a full, active life.

The following introduces recent reports as references in the related studies.

Alexander, S. R., G. S. Arbus, et al. "The 1989 report of the North American Pediatric Renal Transplant Cooperative Study." Pediatr Nephrol. 1990 Sep;4(5):542-53.

This report of the North American Pediatric Transplant Cooperative Study summarizes data contributed by 57 participating centers on 754 children with 761 transplants from 1 January 1989 to 16 February 1989. Data collection was initiated in October 1987 and follow-up of all patients is ongoing. Transplant frequency increased with age; 24% of the patients were less than 5 years, with 7% being under 2 years. Common frequent diagnoses were: aplastic/dysplastic kidneys (18%), obstructive uropathy (16%), and focal segmental glomerulosclerosis (12%). Preemptive transplant, i.e., transplantation without prior maintenance dialysis, was performed in 21% of the patients. Dialytic modalities pretransplant were peritoneal dialysis in 42% and hemodialysis in 25%. Bilateral nephrectomy was reported in 29%. Live-donor sources accounted for 42% of the transplants. Among cadaveric donors, 41% of the donors were under 11 years old. During the first post-transplant month, maintenance therapy was used similarly for live-donor and cadaver source transplants, with prednisone, cyclosporine, and azathioprine used in 93%, 83%, and 81%, respectively. Triple therapy with prednisone, cyclosporine, and azathioprine was used in 78%, 75%, and 75% of functioning cadaver source transplants at 6 months, 12 months, and 18 months as opposed to 60%, 63%, and 54% for live-donor procedures, with single-drug therapy being uncommon. Rehospitalization during months 1-5 occurred in 62% of the patients, with treatment of rejection and infection being the main causes. Additionally, 9% were hospitalized for hypertension. During months 6-12 and 12-17, 30% and 28% of the patients with functioning grafts were rehospitalized. Times to first rejection differed significantly for cadaver and live-donor transplants. The median time to the first rejection was 36 days for cadaver transplants and 156 days for live-donor transplants. Overall, 57% of treated rejections were completely reversible although the complete reversal rate decreased to 37% for four or more rejections. One hundred and fifty-two graft failures had occurred at the time of writing, with a 1-year graft survival estimate of 0.88 for live-donor and 0.71 for cadaver source transplants. In addition to donor source, recipient age is a significant prognostic factor for graft survival. Among cadaver donors, decreasing donor age is associated with a decreasing probability of graft survival. Thirty-five deaths have occurred; 16 attributed to infection and 19 to other causes. The current 1-year survival estimate is 0.94. There have been 9 malignancies.

Baqi, N., A. Tejani, et al. "Renal transplantation in Down syndrome: a report of the North American Pediatric Renal Transplant Cooperative Study." Pediatr Transplant. 1998 Aug;2(3):211-5.

There are few published reports on renal transplantation in patients with Down syndrome and renal failure. By means of a questionnaire sent to participating renal centers of the North American Pediatric Renal Transplant Cooperative Study, this study identified 14 Down syndrome patients who received renal transplants between January 1987 and November 1995. There were 6 males and 8 females between the ages of 6 and 21 years. Of the group, 8 patients were Caucasian and 6 were of African American ethnicity. Four patients had a primary diagnosis of obstructive uropathy, two had hypoplastic/dysplastic renal disease, two had focal segmental glomerulosclerosis, two had a diagnosis of chronic glomerulonephritis and four patients had unspecified diagnoses. Eight patients received cadaver kidneys whilst the other six had a living related transplant from a parent or sibling. Only one patient had received a prior kidney transplant, ten patients were on dialysis at the time they were transplanted and 4 patients were preemptively transplanted. Standard immunosuppression with Cyclosporine, Imuran and Prednisone was used. In addition, nine patients received induction therapy at the time of transplantation. Follow-up data revealed that 5 grafts (35.7%) had failed, two as a result of rejection and three due to patient death. At the time of data cutoff there were 3 deaths, one due to viral infection and the other two secondary to cardio-pulmonary complications.

Bartosh, S. M., R. N. Fine, et al. "Outcome after transplantation of young patients with systemic lupus erythematosus: a report of the North American pediatric renal transplant cooperative study." Transplantation. 2001 Sep 15;72(5):973-8.

BACKGROUND: The risk of progressing to end-stage renal disease in children with lupus glomerulonephritis is 18% to 50%. Published reports of transplantation secondary to end-stage renal failure in adult patients with systemic lupus erythematosus (SLE) demonstrate equivalent patient and graft survival. The purpose of this analysis is to compare patient and graft outcomes of pediatric SLE renal transplant recipients with an age-, race-, and gender-matched control group. METHODS: A retrospective analysis of the North American Pediatric Renal Transplant Cooperative Study (NAPRTCS) database identified 100 renal transplants performed in 94 young SLE patients. A control group of 470 children having received 501 renal transplants was identified. RESULTS: The SLE cohort was primarily female (82%), non-Caucasian (61%), adolescents and differed from the control group in being less likely to be preemptively transplanted, in receiving longer pretransplant dialysis, and in being likely to have received more than five pretransplant transfusions. After transplantation, there were no differences seen in patient survival at 3 years (89% vs. 95%, SLE vs. control) or in overall graft failure rates (31% vs. 29%, SLE vs. control). There was a trend toward poorer graft survival in non-white SLE patients receiving living donor grafts compared with white SLE patients. An increased graft failure rate was seen among those SLE cadaveric transplant recipients receiving peritoneal dialysis before transplant compared with controls and compared with SLE patients receiving hemodialysis. No differences were seen in rates of acute tubular necrosis or overall acute rejection incidence, although there was a significant increase in the percentage of living donor SLE patients who experienced greater than four rejection episodes. There were nonsignificant trends toward increased graft loss due to patient death with a functioning graft as well as increased mortality secondary to infection in the SLE patients. CONCLUSIONS: The results of renal transplantation in young SLE patients are comparable to those seen in an age-, race- and gender-matched control group. The similar patient and graft survival is seen despite the SLE patients having an underlying disease with multiorgan involvement and despite receiving immunosuppression for potentially prolonged periods before transplantation. No outcome differences were seen except for an unexplained increase in the incidence of recurrent rejections (> or =4) in the living donor SLE patients as well as increased graft failure rate in those patients receiving cadaveric renal transplants after a period of peritoneal dialysis. The nonsignificant trends toward increased graft failures in non-white SLE patients receiving living donor grafts, increased graft loss secondary to death with a functioning graft, as well as the increased mortality due to infection deserve recognition and further study.

Bastos, K., L. A. Lucarelli, et al. "C.E.R.A. maintains stable hemoglobin in Latin American patients on dialysis." Int Urol Nephrol. 2013 Oct;45(5):1355-64. doi: 10.1007/s11255-012-0272-3. Epub 2012 Sep 19.

BACKGROUND: C.E.R.A. is a continuous erythropoietin receptor activator with characteristics that permit a once-monthly schedule of administration for the maintenance treatment for chronic kidney disease (CKD) patients. The main objective of this study was to assess the maintenance of Hb concentration with once-monthly intravenous and/or subcutaneous C.E.R.A. therapy in Latin American dialysis patients with chronic renal anemia previously treated with epoetin alfa s.c or i.v 1-3 times per week. METHODS: This was a single-arm, open-label, multicenter, 32-week study of anemic patients with CKD previously treated with epoetin alfa sc or iv 1-3 times per week. After a 4-week screening period, during which mean Hb levels were maintained between 10.5 and 12.5 g/dL on their previous erythropoiesis stimulating agent, eligible patients entered a 16-week C.E.R.A. dose titration period followed by a 4-week efficacy evaluation period (EEP) and a 28-week safety follow-up. The starting dose of C.E.R.A. was based on the previous dose of epoetin alfa. Doses of C.E.R.A. were then adjusted to maintain Hb levels within +/-1.0 g/dL of the reference concentration and between 10.5 and 12.5 g/dL. The Hb reference concentration was defined as the mean of all Hb levels during screening. The primary end point was the proportion of patients maintaining a mean Hb concentration (g/dL) within +/-1 g/dL of their reference Hb and between 10.5 and 12.5 g/dL during the EEP. RESULTS: A total of 163 patients from 27 centers in Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, and Venezuela entered the treatment period and 102 completed the prescribed course of C.E.R.A. Forty-five patients (43.7 %) maintained a mean Hb concentration within +/-1 g/dL of their reference Hb value and between 10.5 and 12.5 g/dL during the EEP. The median monthly dose remained constant at 120 mug during the titration period and during the EEP. On the average, there were only 2.3 dose changes per patient in 28 weeks of treatment, covering 7 C.E.R.A. scheduled administrations. 53 % of all dose changes were dose decreases, 47 % increases. A total of 10 AEs and 4 SAEs were considered to be related to the study treatment. CONCLUSIONS: Once-monthly C.E.R.A. treatment effectively maintains stable Hb concentrations in patients with chronic renal anemia undergoing dialysis with a good safety and tolerability profile.

Benjamin, J., S. Moldavsky, et al. "Prevalence of heparin-induced antibody in African-American hemodialysis patients--comparison to non-dialysis patients." Clin Nephrol. 2009 Mar;71(3):263-6.

AIMS: Heparin-induced antibody formation and thrombocytopenia are well-established complications of heparin use and may be associated with thromboembolic events. Our study aimed to establish the prevalence of heparin-induced antibodies (HIA), otherwise known as platelet factor 4 (PF4) antibodies, and their relationship to thrombocytopenia and thrombotic events in a group of predominantly African-American hemodialysis patients over 12 months. For comparison, the prevalence of HIA in thrombocytopenic patients with serum creatinine of less than 2.0 mg/dl tested for the antibody in the same period was evaluated. METHODS: 36 hemodialysis patients on thrice-weekly, in-center treatments receiving heparin on dialysis were selected to have blood drawn predialysis for PF4 heparin antibodies (HIA). Complete blood counts (CBC) were also checked that day and monthly for the next 3 months. Outpatient records were reviewed for thromboembolic events, including thrombosis of dialysis access lines, grafts and fistulas. The HIA results for the dialysis patients were compared with HIA performed at the same lab for non-dialysis thrombocytopenic patients during the same period. RESULTS: 17 out of 36 (47%) hemodialysis patients had detectable HIA. There were no differences in gender, ethnicity, disease states, or duration of hemodialysis. None of the patients had thrombocytopenia, and the incidence of thromboembolic events was statistically not different from patients without HIA. The non-CKD thrombocytopenic group had a lower incidence, 16/88 (18%) of positive HIA. CONCLUSIONS: Heparin-induced antibodies are relatively common in patients receiving hemodialysis. However, their presence does not appear to be associated with clinical consequences. Therefore, testing for HIA should be done only if a clinical indication is present.

Bomback, A. S., M. A. Perazella, et al. "American Society of Nephrology quiz and questionnaire 2014: glomerular diseases." Clin J Am Soc Nephrol. 2015 Apr 7;10(4):716-22. doi: 10.2215/CJN.11821214. Epub 2015 Feb 9.

The Nephrology Quiz and Questionnaire remains an extremely popular session for attendees of the Annual Kidney Week Meeting of the American Society of Nephrology. Once again, the conference hall was overflowing with audience members and eager quiz participants. Topics covered by the expert discussants included electrolyte and acid-base disorders, glomerular disease, ESRD/dialysis, and transplantation. Complex cases representing each of these categories along with single best answer questions were prepared and submitted by the panel of experts. Before the meeting, program directors of United States nephrology training programs and nephrology fellows answered the questions through an internet-based questionnaire. During the live session, members of the audience tested their knowledge and judgment on a series of case-oriented questions that were prepared and discussed by the experts. They compared their answers in real time using audience response devices with the answers of the nephrology fellows and training program directors. The correct and incorrect answers were then discussed after the audience responses, and the results of the questionnaire were displayed. As always, the audience, lecturers, and moderators enjoyed this educational session. This article recapitulates the session and reproduces its educational value for the readers of CJASN. Enjoy the clinical cases and expert discussions.

Bonnardeaux, A., D. Ouimet, et al. "Peritonitis in continuous ambulatory peritoneal dialysis: impact of a compulsory switch from a standard to a Y-connector system in a single North American Center." Am J Kidney Dis. 1992 Apr;19(4):364-70.

One hundred one continuous ambulatory peritoneal dialysis (CAPD) patients from a single North American center were analyzed in a retrospective and cross-over study for peritonitis rates using a standard system (Travenol System II) or a Y-shaped disconnect-disinfectant system (Travenol O-set). Twenty-one of 34 patients using the standard set (group I) had 53 episodes of peritonitis in 508 patient-months or one episode per 9.6 patient-months. Nine of 17 patients switching from the standard to the disconnect-disinfectant system (group II) experienced 22 episodes of peritonitis in 275 patient-months or one episode per 12.5 patient-months on the standard set, while six patients had 10 episodes of peritonitis in 275 patient-months or one episode per 27.5 patient-months on the disconnect-disinfectant system (P less than 0.04). Twenty-eight of 67 new CAPD patients starting on the disconnect-disinfectant system (group III) had 37 episodes of peritonitis in 1,086 patient-months or one episode per 29.4 patient-months (P less than 0.01 v group I). Exit-site infections (ESI) occurred in 35.3% of patients using the standard set versus 34.3% of those using the O-set. The presence of an ESI was not associated with a higher risk of peritonitis, but modified the bacteriological profile of subsequent peritonitis episodes in patients using the O-set, favoring the organisms isolated from the exit site. Decreases in peritonitis rates with the O-set were due to a reduction of peritonitis episodes secondary to most bacterial agents and not only to skin organisms. Diabetics using intraperitoneal insulin had similar peritonitis and ESI rates as nondiabetics.(ABSTRACT TRUNCATED AT 250 WORDS)

Brommage, D., M. Karalis, et al. "American Dietetic Association and the National Kidney Foundation Standards of Practice and Standards of Professional Performance for registered dietitians (generalist, specialty, and advanced) in nephrology care." J Ren Nutr. 2009 Sep;19(5):345-56. doi: 10.1053/j.jrn.2009.06.020.

The American Dietetic Association (ADA) Renal Dietitians Practice Group (RPG) and the National Kidney Foundation Council on Renal Nutrition (NKF CRN), under the guidance of the ADA Quality Management Committee and Scope of Dietetics Practice Framework Sub-Committee, have developed the Standards of Practice (SOP) and Standards of Professional Performance (SOPP) for Registered Dietitians (Generalist, Specialty, and Advanced) in Nephrology Care (Supplementary Figures 1, 2, and 3 are available only online at www.jrnjournal.org). The SOP and SOPP documents are based upon the 2008 Revised Standards of Practice in Nutrition Care and Standards of Professional Performance for Registered Dietitians (RDs)(1), which are part of ADA's Scope of Dietetics Practice Framework(2). The 2008 Revised SOP in Nutrition Care and SOPP, along with the Code of Ethics(3), guide the practice and performance of RDs in all settings.

Brooks, D., J. Charleston, et al. "Predictors of participant adherence and retention in the African American Study of Kidney Disease and Hypertension." Nephrol Nurs J. 2008 Mar-Apr;35(2):133-42.

The African American Study of Kidney Disease and Hypertension (AASK) was conducted over a 7-year period at 21 clinical centers across the United States to investigate whether one of two levels of blood pressure control and/or one of three classes of antihypertensive medications was more effective at slowing the rate of renal disease in African Americans with renal insufficiency presumed secondary to hypertension. Analysis at the end of the study revealed an overall participant retention rate of 90% (still alive and not on dialysis); defined as having had at least one 125I-iothalamate GFR, the primary data collection element, measured in the final year of the study. Adherence, defined as not missing 3 consecutive protocol visits (6 months) during the study, was 77%. Adherence to protocol visits showed that participants assigned to a low blood pressure goal (mean arterial pressure [MAP] of 92 mm/Hg or lower) had a 30% (95% CI, 9%-45%) lower risk of nonadherence as compared to those assigned to the usual goal [MAP of 102-107] ($p = 0.006$). No statistically significant difference was observed between randomized drug assignments. Higher baseline systolic ($p = 0.0001$) and diastolic ($p = 0.007$) blood pressures were associated with a higher risk of nonadherence. Declining to provide an annual income is associated with a higher risk of nonadherence compared to those with incomes of $15,000 or higher ($p = 0.04$). In discussing the identifying factors that may predict nonadherence and the strategies that assisted in improving adherence and retention, this article offers insights for researchers in achieving high levels of participation in long-term clinical studies.

Calderon, R. B. and S. Depine "Sustainable and tenable renal health model: a Latin American proposal of classification, programming, and evaluation." Kidney Int Suppl. 2005 Aug;(97):S23-30.

BACKGROUND: End-stage renal disease (ESRD) presents a major problem to public health, with complex implications for social and economic structures in every nation of the world. Clearly, Latin American and Caribbean countries are not able to meet the needs of every patient requiring dialysis treatment at ESRD. Consequently, a considerable number of patients die every year as a result of lack of resources. Aware of this serious social, ethical, and economic problem, the Latin American Society of Nephrology and Hypertension proposed a new renal health concept in the region. In December 2002, at the workshop in Valdivia, Chile, a modification to the National Kidney Foundation Classification of Chronic Kidney Disease was approved. PROJECT: According to modifications to the concept of chronic kidney disease approved in the Declaration of Valdivia, a new Renal Health Model was proposed. It consists of including orderly follow-up in patients' charts, starting from the earliest stage, and a model establishing a guideline for the reallocation of financial resources to guarantee continuity of treatment to patients with ESRD. CONCLUSION: The implementation of the Renal Health Program in health ministries of Latin American and Caribbean countries would allow for a substantial improvement in renal health prevention and management, as a result of better distribution of financial and human resources.

Cantor, T. L. iPTH Treatment Guidelines for Caucasian versus African-American Hemodialysis Patients, Semin Dial. 2007 Jul-Aug;20(4):370-1.

Carey, W. A., L. I. Talley, et al. "Outcomes of dialysis initiated during the neonatal period for treatment of end-stage renal disease: a North American Pediatric Renal Trials and Collaborative Studies special analysis." Pediatrics. 2007 Feb;119(2):e468-73. Epub 2007 Jan 15.

OBJECTIVE: We sought to determine the outcomes of initiating long-term dialysis of neonates and children aged > 1 to 24 months with end-stage renal disease. PATIENTS AND METHODS: By querying the North American Pediatric Renal Trials and Collaborative Studies database, we obtained information on 193 neonates (< or = 1 month of age) and 505 children (> 1-24 months of age) with a presumptive diagnosis of end-stage renal disease who initiated long-term dialysis. Dialysis characteristics and likelihood of hospitalization were compared using the chi2 test, and duration of hospitalization was compared using the Wilcoxon 2-sample test. Product limit methods were implemented, and the log rank test was used to compare time-to-event analyses. Multivariate analyses were performed using Cox proportional hazards models. RESULTS: Neonates with end-stage renal disease were more likely to receive peritoneal dialysis versus hemodialysis than older children with end-stage renal disease. Moreover, neonates who initiated dialysis during the first month of life were just as likely to terminate dialysis as were the older children. Rates of renal transplantation were significantly lower in the neonates compared with the older children, but neonates were more likely to recover function of the native kidney. Although neonates were more often hospitalized, their overall risk of mortality was similar to that observed in older children. CONCLUSIONS: Neonates with a presumptive diagnosis of end-stage renal disease may initiate long-term dialysis during the first month of life with outcomes comparable to those of patients who initiate dialysis later in infancy.

Carlini, R., G. Obrador, et al. "The first report of The Latin American Society of Nephrology and Hypertension (SLANH) Anemia Committee in chronic hemodialysis patients." Nefrologia. 2014;34(1):96-104. doi: 10.3265/Nefrologia.pre2013.Oct.12234. Epub 2013 Dec 12.

BACKGROUND: Anemia almost invariably occurs in patients with chronic kidney disease. Limited data are available regarding anemia management in Latin American (LA) hemodialysis (HD) patients. OBJECTIVE: To evaluate the results of the first anemia survey of the Anemia Committee of the SLANH. METHODS: This is a multinational, voluntary survey that collected anemia management data from adult HD patients from independent, non-chain owned HD units, between 09/2009 and 03/2010. T-test, ANOVA, chi-square test and multivariate logistic regression were used for statistical analysis. RESULTS: The survey received responses from 134 HD units of 16 countries providing data from 9,025 patients. Mean values of Hb, ferritin, and transferrin saturation (TSAT) were 10.5 +/- 1.8 g/dL, 570 +/- 539 microg/l, and 29.8 +/- 15%, respectively. Only 32.7% of patients were within the Hb target of 10.5-12.0 g/dL (46.3% were below and 21.1% above). Erythropoietin-stimulating agents (ESAs) were administered to 84.3% patients and 68.3% received intravenous iron (IV). Iron deficiency (TSAT</=20%) was present in 27.5% patients and among those receiving erythropoietin, 47% did not achieve Hb target. The independent variables associated with the lowest Hb level (<10.5 g/dL) were: female gender, TSAT<25% and age<50 years. CONCLUSIONS: According to these results, nearly half of LA chronic HD patients did not achieve the recommended Hb target despite wide use of ESAs and IV iron.

Cases, A. Recent advances in nephrology: highlights from the 35th annual meeting of the American society of nephrology, Drugs Today (Barc). 2002 Dec;38(12):797-805.

The 35th Annual Meeting of the American Society of Nephrology, held in Philadelphia, Pennsylvania, United States (October 30 to November 4, 2002) presented the newest advances in basic and clinical nephrology science. Several presentations and symposia discussed the effects of various interventions and risk factors in clinical outcomes in dialysis patients. The recent evidences of pure red cell aplasia secondary to neutralizing antibodies against erythropoietin were also extensively discussed in a special symposium. Recent advances in the management of calcium phosphorus metabolism and secondary hyperparathyroidism, such as the clinical efficacy and safety of AMG-073, a new calcimimetic agent in the control of hyperparathyroidism in chronic kidney disease patients, or the use of sevelamer or lanthanum carbonate as phosphate binders, were presented. The results in animal models on improved sparing of renal function with rapamycin versus cyclosporin A represent a promising advance in renal transplantation. Finally, the recent discoveries with the newly identified disease gene PKHD1, which causes autosomal recessive polycystic kidney disease, were also presented at the meeting.

Charytan, C., N. Levin, et al. "Efficacy and safety of iron sucrose for iron deficiency in patients with dialysis-associated anemia: North American clinical trial." Am J Kidney Dis. 2001 Feb;37(2):300-7.

Iron sucrose has been used to provide intravenous (IV) iron therapy to patients outside the United States for more than 50 years. In a multicenter North American clinical trial, we determined the efficacy and safety of iron sucrose therapy in patients with dialysis-associated anemia, evidence of iron deficiency, and below-target hemoglobin (Hgb) levels despite epoetin therapy. Evidence of iron deficiency included a transferrin saturation (Tsat) less than 20% and ferritin level less than 300 ng/mL, and below-target Hgb levels included values less than 11.0 g/dL. We administered iron sucrose in 10 doses, each administered undiluted as 100 mg IV push over 5 minutes, without a prior test dose. We assessed efficacy by determining the subsequent change in Hgb, Tsat, and ferritin values. We assessed safety by recording blood pressure and adverse events after iron sucrose injection and comparing results with those for the same patients during an observation control period. Results showed a significant increase in Hgb level that was first evident after three doses of iron sucrose and persisted at least 5 weeks after the 10th dose. Tsat and ferritin levels also increased significantly and remained elevated. In 77 enrolled patients, including those with previous iron dextran sensitivity, other drug allergies, or concurrent angiotensin-converting enzyme inhibitor use, we saw no serious adverse drug reactions and no change in intradialytic blood pressure associated with iron sucrose administration. We conclude that iron sucrose injection administered as 1,000 mg in 10 divided doses by IV push without a prior test dose is safe and effective for the treatment of iron deficiency in patients with dialysis-associated anemia.

Chavers, B. M., E. K. Sullivan, et al. "Pre-transplant blood transfusion and renal allograft outcome: a report of the North American Pediatric Renal Transplant Cooperative Study." Pediatr Transplant. 1997 Aug;1(1):22-8.

Data from the North American Pediatric Renal Transplant Cooperative Study were analyzed to determine the effect of pre-transplant blood transfusions on graft survival and acute rejection for pediatric renal transplant recipients. Between January 1, 1987 and November 11, 1995, 4015 renal transplants in children <18 years of age (2007 living donor, 2008 cadaver) were registered in the study. Recipients were grouped by number of pre-transplant blood transfusions (0, n=1171; 1-5, n=1796; >5, n=1048). The risks of graft failure and acute rejection were related to number of pre-transplant transfusions by proportional hazards regression analysis. Models were adjusted for recipient age, sex, race, induction therapy, prior dialysis, prior transplant, HLA-DR mismatching, and transplant year. Additionally, the living donor (LD) model was adjusted for the use of donor-specific blood transfusion, and the cadaver donor (CAD) model was adjusted for donor age and cold storage time. The risk of graft failure was increased in LD (p<0.001) and CAD (p=0.001) recipients who received >5 pre-transplant transfusions. There was no significant difference in the causes of graft loss between groups. The risk of a first acute rejection decreased in LD recipients who received 1-5 blood transfusions compared with 0 (p=0.04) or >5 (p=0.003) and in CAD recipients who received 1-5 compared with 0 (p=0.05). We conclude that multiple (>5) pre-transplant blood transfusions are a risk factor for graft failure in pediatric recipients and should be avoided. However, limited blood transfusions (1-5) are associated with a decreased risk of acute rejection. Our data show that for pediatric recipients the number of pre-transplant blood transfusions is an important factor in transplant outcome.

Chen, A., K. Martz, et al. "Does allograft failure impact infection risk on peritoneal dialysis: a North American Pediatric Renal Trials and Collaborative Studies Study." Clin J Am Soc Nephrol. 2012 Jan;7(1):153-7. doi: 10.2215/CJN.03160411.

BACKGROUND AND OBJECTIVES: Several adult studies report that patients returning to peritoneal dialysis after allograft failure have increased infection-related morbidity. The impact of allograft failure on infection risk in children is uncertain. We compared peritonitis-free survival between pediatric peritoneal dialysis patients with prior allograft failure and those who were transplant naive. DESIGN, SETTING, PARTICIPANTS, & MEASUREMENTS: We studied patients, 2-21 years of age, who initiated peritoneal dialysis from January 1, 1992, to December 31, 2007, in the North American Pediatric Renal Trials and Collaborative Studies registry. Demographic characteristics were compared between transplant naive and allograft failure patients using a chi-squared statistic. Peritonitis-free survival was compared between the two groups using Kaplan-Meier estimates. A Cox regression analysis was performed to adjust for covariates, which impact risk of peritonitis. RESULTS: Of 2829 patients on peritoneal dialysis, 445 had a prior history of allograft failure and 2384 did not (transplant naive). Demographic characteristics including age at dialysis initiation, race, primary renal disease, and era of dialysis initiation were significantly different between the two groups. Peritonitis-free survival was poorer for the allograft failure group. After covariate adjustment, allograft failure showed borderline significance as a factor predictive of peritonitis. CONCLUSIONS: Children initiating peritoneal dialysis after allograft failure may experience a slightly higher infection risk.

Cohen, C. "Ethical and legal considerations in the care of the infant with end-stage renal disease whose parents elect conservative therapy. An American perspective." Pediatr Nephrol. 1987 Apr;1(2):166-71.

When parents elect conservative treatment for infants with end-stage renal disease (ESRD), their choice is medically, ethically, and legally acceptable, since dialysis and transplantation for young infants are still in the range of innovative and experimental treatments. Pediatric nephrologists have been reluctant to view these treatments as standard for very young infants because of doubts about their efficacy, technical difficulties in providing them for tiny patients, uncertainty about their short-term and long-term risks, and the suffering that they can create. Because these renal replacement therapies are not yet established, it is the responsibility of parents to determine whether the benefits of treatment outweigh its burdens for their infants. Physicians have an obligation to ensure that parents make a well-considered decision, and to provide them with counsel and support.

Contreras, G., H. Li, et al. "Kidney allograft survival of African American and Caucasian American recipients with lupus." Lupus. 2014 Feb;23(2):151-8. doi: 10.1177/0961203313513819. Epub 2013 Dec 2.

BACKGROUND: African Americans with lupus who receive kidney transplants have high prevalence of predictors of allograft failure, which can explain their poor outcomes. METHODS: Of 1223 African Americans and 1029 Caucasian Americans with lupus who received kidney transplants from deceased donors between 1987 and 2006 with complete records in the UNOS program, 741 pairs were matched in 16 predictors employing a predicted probability of group membership. The primary outcome was allograft failure. Main secondary outcomes were rejection, allograft failure due to rejection, and mortality. RESULTS: Matched pairs were predominantly women (82%) with a mean age of 39 years. Twenty-four percent of recipients received kidneys from expanded criteria donors. African Americans and Caucasian Americans matched well (p >/= 0.05): donor age, gender and race; recipient age, gender, education and insurance; dialysis prior to transplant, kidneys from expanded criteria donors, cold ischemia time, history of prior kidney transplant, panel reactive antibodies, human leukocyte antigens mismatch, blood type compatibility, transplant Era, and follow-up time. Contrary to the unmatched cohort with significantly higher allograft failure rate (events per 100 patient-years) in African Americans compared to Caucasian Americans (10.49 vs 6.18, p<0.001), matched pairs had similar allograft failure rates (8.41 vs 7.81, p=0.418). Matched pairs also had similar rates of rejections (9.82 vs 9.39, p=0.602), allograft failure due to rejection (6.19 vs 5.71, p=0.453), and mortality (2.79 vs 3.52, p=0.097). CONCLUSION: In lupus recipients of kidney transplants from deceased donors, African American and Caucasian Americans have similar allograft failure rates when predictors are matched between groups.

Crook, E. D., P. Wofford, et al. "Advanced diabetic nephropathy disproportionately affects African-American females: cross-sectional analysis and determinants of renal survival in an academic renal clinic." Ethn Dis. 2003 Winter;13(1):28-33.

OBJECTIVE: The aims of this study were to study further the previously observed 2-fold higher prevalence of endstage renal disease (ESRD) due to diabetic nephropathy (DN) in African-American (AA) women, when compared to AA men, and to identify factors predictive of renal survival in this population. DESIGN: Cross-sectional analysis of DN in an academic renal clinic. METHODS: We identified and retrospectively studied all patients with diabetic nephropathy enrolled in our renal clinic in 1996. Charts were reviewed for basic demographic factors, medications, and renal function. RESULTS: Of approximately 600 total patients, 141 were diagnosed with DN, and sufficient data was available on 119 (98 AA) of these, with a mean followup of 105 weeks. Patients were hypertensive, had advanced renal disease at presentation (creatinine [Cr]=3.97 mg/dL), and had been diabetic for 16.7 years. The AAs were disproportionately represented by females (69 vs 29). Seventy patients reached ESRD at the time of analysis (April 2000) with a mean time to dialysis of 79.3 weeks. Significant determinants for longer time to ESRD (TTE) were: lower presenting Cr, female gender, and AA race. A MAP<100 mm Hg over the course of followup was adversely related to TTE. Among AAs, taking an angiotensin converting enzyme (ACE) inhibitor, or a calcium channel blocker, was associated with better renal survival. Changes in renal function at 1 and 2 years were associated with age, urine protein at presentation, and MAP over the course of followup. CONCLUSIONS: In Mississippi, DN is more much more prevalent in AA females, compared to AA males. In those with advanced DN, MAP<100 mm Hg may lessen the chances for renal survival.

Cueto-Manzano, A. M., L. Gonzalez-Espinoza, et al. "Inflammation in peritoneal dialysis: a Latin-American perspective." Perit Dial Int. 2007 May-Jun;27(3):347-52.

Peritoneal dialysis (PD) patients present an extremely high mortality rate, but the mechanisms mediating the increased risk of mortality observed in this group of patients are still largely unknown, which limits the perspective of effective therapeutic strategies. The leading hypothesis that tries to explain this high mortality risk is that PD patients are exposed to a number of traditional risk factors for cardiovascular disease (CVD) already at the onset of their chronic kidney disease (CKD), since many of these risk factors are common to both CVD and CKD. Of particular importance, chronic inflammation recently emerged as an important novel risk factor related to multiple complications of CKD. There are many stimuli of the inflammatory response in CKD patients, such as fluid overload, decreased cytokine clearance, presence of uremia-modified proteins, presence of chronic infections, metabolic disturbances (including hyperglycemia), obesity. Many of these factors are related to PD. Latin America has made some progress in economic issues; however, a large portion of the population is still living in poverty, in poor sanitary conditions, and with many health-related issues, such as an increasing elderly population, low birth weights, and increasingly high energy intake in the adult population, which, in combination with changes in lifestyle, has provoked an increase in the prevalence of obesity, diabetes, and CVD. Therefore, in Latin America, there seems to be a peculiar situation combining high prevalence of low education level, poor sanitary conditions, and poverty with increases in obesity, diabetes, and sedentary lifestyle. Since inflammation and mortality risk are intimately related to both sides of those health issues, in this review we aim to analyze the peculiarities of inflammation and mortality risk in the Latin-American PD population.

Cusumano, A., G. Garcia Garcia, et al. "The Latin American Dialysis and Transplant Registry: report 2006." Ethn Dis. 2009 Spring;19(1 Suppl 1):S1-3-6.

The Latin American Dialysis and Transplant Registry collects information on end-stage renal disease and its treatment in 20 countries of the region. By December 2005, a total of 257,974 patients were on renal replacement therapy, for a prevalence of 478.2 cases per million population; 57% were on hemodialysis, 23% on peritoneal dialysis, and 20% had a functioning kidney graft. The prevalence on renal replacement therapy continued to grow at a rate of approximately 6% annually. Hemodialysis continued to be the treatment of choice in the region, except for in Mexico, Nicaragua, El Salvador, the Dominican Republic, and Guatemala, where peritoneal dialysis predominated. Diabetes remained the leading cause of end-stage renal disease, and the highest incidences were reported in Puerto Rico (65%), Mexico (51%), Venezuela (42%), and Colombia (35%). Forty-four percent of incident patients were aged > 65 years. The rate of transplantation remained unchanged at 15 per million population, which is not sufficient to satisfy the demand of the growing number of patients in the waiting list. Close to 50% of transplants came from cadaver donors. A total of 137 simultaneous kidney-pancreas transplants were performed, 123 in Brazil, 6 in Argentina, 3 in Uruguay, 2 each in Colombia and Mexico, and 1 in Chile. In addition, 1 cardiorenal transplant (Argentina) and 1 liver-renal transplant (Chile) were reported. In conclusion, the incidence and prevalence of renal replacement therapy continued to grow. Prevention of chronic kidney disease and an integrated approach of affordable dialysis and transplantation are urgently needed in the region.

Danovitch, G. M., S. Hariharan, et al. "Management of the waiting list for cadaveric kidney transplants: report of a survey and recommendations by the Clinical Practice Guidelines Committee of the American Society of Transplantation." J Am Soc Nephrol. 2002 Feb;13(2):528-35.

The Clinical Practice Guidelines Committee of the American Society of Transplantation developed a survey to review the policies of kidney transplant programs in the United States with respect to the management of the steadily expanding waiting list for cadaveric kidneys. The survey was sent to 287 centers, and 192 (67%) responded. The survey indicated that regular follow-up monitoring, most frequently on an annual basis, is required by the majority (71%) of programs. Patients considered to be at high risk and candidates for combined kidney-pancreas transplantation may be monitored more frequently. Annual screening for coronary artery disease is typically required for asymptomatic patients considered to be at high risk for covert disease. Noninvasive techniques are typically used, and a designated cardiologist is usually available to the transplant program. The dialysis nephrologist or the potential transplant recipient is expected to inform the transplant program of intercurrent events that may affect transplant candidacy. Standard health maintenance screening is required, together with the routine updating of serologic and other blood tests that may be relevant to the posttransplant course. Smaller transplant programs (<100 patients on the waiting list) are more likely to maintain closer contact with the wait-listed patients and to attempt to influence their treatment during dialysis and are less likely to cancel transplants because of unanticipated pretransplant medical problems. The work load necessitated by the follow-up monitoring of wait-listed patients was assessed and, in the absence of specific evidence-based information, a series of recommendations were developed to reflect current standards of practice and to suggest future research initiatives.

Derebail, V. K., E. K. Lacson, Jr., et al. "Sickle trait in African-American hemodialysis patients and higher erythropoiesis-stimulating agent dose." J Am Soc Nephrol. 2014 Apr;25(4):819-26. doi: 10.1681/ASN.2013060575. Epub 2014 Jan 23.

African Americans require higher doses of erythropoiesis-stimulating agents (ESAs) during dialysis to manage anemia, but the influence of sickle cell trait and other hemoglobinopathy traits on anemia in dialysis patients has not been adequately evaluated.

We performed a cross-sectional study of a large cohort of adult African-American hemodialysis patients in the United States to determine the prevalence of hemoglobinopathy traits and quantify their influence on ESA dosing. Laboratory and clinical data were obtained over 6 months in 2011. Among 5319 African-American patients, 542 (10.2%) patients had sickle cell trait, and 129 (2.4%) patients had hemoglobin C trait; no other hemoglobinopathy traits were present. Sickle cell trait was more common in this cohort than the general African-American population (10.2% versus 6.5%-8.7%, respectively, P<0.05). Among 5002 patients (10.3% sickle cell trait and 2.4% hemoglobin C trait) receiving ESAs, demographic and clinical variables were similar across groups, with achieved hemoglobin levels being nearly identical. Patients with hemoglobinopathy traits received higher median doses of ESA than patients with normal hemoglobin (4737.4 versus 4364.1 units/treatment, respectively, P=0.02). In multivariable analyses, hemoglobinopathy traits associated with 13.2% more ESA per treatment (P=0.001). Within subgroups, sickle cell trait patients received 13.2% (P=0.003) higher dose and hemoglobin C trait patients exhibited a similar difference (12.9%, P=0.12). Sensitivity analyses using weight-based dosing definitions and separate logistic regression models showed comparable associations. Our findings suggest that the presence of sickle cell trait and hemoglobin C trait may explain, at least in part, prior observations of greater ESA doses administered to African-American dialysis patients relative to Caucasian patients.

Ellis, E. N., V. Yiu, et al. "The impact of supplemental feeding in young children on dialysis: a report of the North American Pediatric Renal Transplant Cooperative Study." Pediatr Nephrol. 2001 May;16(5):404-8.

Supplemental feedings are commonly recommended for young children on dialysis but their effect on growth parameters and mortality has not been well documented. We report the results of a North American Pediatric Renal Transplant Cooperative Study (NAPRTCS) survey on the impact of supplemental feedings on growth and mortality in children < 6 years of age at dialysis initiation. Sixty-four nonsurvivors (NonS) were matched with 110 survivors (S) for age at dialysis initiation, primary renal disease, and year of entry into the NAPRTCS database. Questionnaires were completed by participating centers on 137 patients (51 NonS, 86 S). Supplemental feedings were given to 70% of patients and more commonly given to patients < 2 years of age compared to those 2-5 years of age at dialysis initiation (P < 0.001). Supplemental feedings were also more commonly given to patients with nonrenal disease in addition to renal disease compared to those with renal disease only (P < 0.001). In patients receiving supplemental feedings, the method of supplemental feeding was most commonly by nasogastric tube in patients < 2 years of age compared to those 2-5 years of age (P = 0.027). Supplemental feeding use was not different in S compared to NonS. There were no differences in height standard deviation score (SDS), weight SDS, or change in height or weight SDS in patients receiving supplemental feedings compared to those who did not. The height and weight SDS did not improve over time on supplemental feeds. In summary, despite the common use of supplemental feedings in young patients on dialysis, height, weight, and mortality remain unaffected. Prospective long-term evaluation of this therapy is needed to determine the effectiveness of supplemental feeding.

Ephraim, P. L., N. R. Powe, et al. "The providing resources to enhance African American patients' readiness to make decisions about kidney disease (PREPARED) study: protocol of a randomized controlled trial." BMC Nephrol. 2012 Oct 12;13:135. doi: 10.1186/1471-2369-13-135.

BACKGROUND: Living related kidney transplantation (LRT) is underutilized, particularly among African Americans. The effectiveness of informational and financial interventions to enhance informed decision-making among African Americans with end stage renal disease (ESRD) and improve rates of LRT is unknown. METHODS/DESIGN: We report the protocol of the Providing Resources to Enhance African American Patients' Readiness to Make Decisions about Kidney Disease (PREPARED) Study, a two-phase study utilizing qualitative and quantitative research methods to design and test the effectiveness of informational (focused on shared decision-making) and financial interventions to overcome barriers to pursuit of LRT among African American patients and their families. Study Phase I involved the evidence-based development of informational materials as well as a financial intervention to enhance African American patients' and families' proficiency in shared decision-making regarding LRT. In Study Phase 2, we are currently conducting a randomized controlled trial in which patients with new-onset ESRD receive 1) usual dialysis care by their nephrologists, 2) the informational intervention (educational video and handbook), or 3) the informational intervention in addition to the option of participating in a live kidney donor financial assistance program. The primary outcome of the randomized controlled trial will include patients' self-reported rates of consideration of LRT (including family discussions of LRT, patient-physician discussions of LRT, and identification of a LRT donor). DISCUSSION: Results from the PREPARED study will provide needed evidence on ways to enhance the decision to pursue LRT among African American patients with ESRD.

Fadem, S. Z., D. R. Walker, et al. "Satisfaction with renal replacement therapy and education: the American Association of Kidney Patients survey." Clin J Am Soc Nephrol. 2011 Mar;6(3):605-12. doi: 10.2215/CJN.06970810. Epub 2011 Feb 17.

BACKGROUND AND OBJECTIVES: This study was undertaken by the American Association of Kidney Patients (AAKP) to better understand ESRD patients' satisfaction with their current renal replacement therapy (RRT) and the education they received before initiating therapy. DESIGN, SETTING, PARTICIPANTS, & MEASUREMENTS: In addition to an open invitation on the AAKP website, nearly 9000 ESRD patients received invitations to complete the survey, which consisted of 46 questions. Satisfaction was measured on a 1 (extremely dissatisfied) to 7 (extremely satisfied) scale. RESULTS: Survey respondents were younger, more highly educated, and more likely to be white as well as employed as compared with the U.S. dialysis population. A total of 977 patients responded. Overall patient satisfaction with current RRT treatment varied from a low of 4.5 for in-center hemodialysis (ICHD) to a high of 6.1 in transplant (TX) patients. Peritoneal dialysis (PD) and home hemodialysis (HHD) mean scores were 5.2 and 5.5, respectively. PD, HHD, and TX patients' satisfaction scores were significantly higher than those of ICHD patients ($P < 0.05$). Approximately 31% of respondents felt that the therapies were not equally and fairly presented as treatment options, and 32% responded that they were not educated regarding HHD. CONCLUSIONS: ESRD patients are not uniformly advised about all possible treatment methods and hence were only moderately satisfied with their pretreatment education. Once on RRT, those on a home therapy or with a kidney TX are more satisfied than those with ICHD.

Fanti, P., T. J. Stephenson, et al. "Serum isoflavones and soya food intake in Japanese, Thai and American end-stage renal disease patients on chronic haemodialysis." Nephrol Dial Transplant. 2003 Sep;18(9):1862-8.

BACKGROUND: Soya foods, a staple in several Asian countries, have received increasing attention because of their nutritional properties and their high isoflavone content. We have shown recently abnormal pharmacokinetics of soya isoflavones following acute oral intake, in soya-naive end-stage renal disease (ESRD) patients. No information is available, however, about blood levels of soya isoflavones in ESRD patients with habitual soya intake. Additionally, no information is available about the conjugation profile of these compounds in ESRD patients. METHODS: To assess the relationship between habitual soya intake on blood isoflavone levels in ESRD patients, we recorded dietary soya food intake and analysed circulating levels of soya isoflavones in randomly selected, clinically stable haemodialysis patients from the United States ($n = 20$), Thailand ($n = 17$) and Japan ($n = 20$). Dietary records and three weekly blood samples were collected from each participant. Combined isoflavones and individual genistein, daidzein, glycitein and O-desmethylangolensin (DMA) were analysed in serum by liquid chromatography/mass spectrometry. Lipid phase micronutrients, including tocopherols, carotenoids and retinol were also measured to compare ethnic differences in isoflavones with those of more common lipid soluble antioxidant micronutrients. RESULTS: Soya intake was higher in Japanese than in Thai patients and it was negligible in the US patients. Blood levels of genistein were very elevated and significantly higher in the Japanese patients (1128 +/- 205 nM), as compared with the Thai and US patients (258 +/- 64 and 168 +/- 49 nM, respectively; $P < 0.001$). The other isoflavones followed the same trend. Daidzein was more concentrated than genistein in the dialysis patients. Robust correlation was present between weekly soya intake and blood isoflavone levels ($r = 0.56$, $P < 0.001$). Despite very high total isoflavone concentrations, the levels of unconjugated and sulphated isoflavones in the Japanese patients were comparable to those described in healthy subjects. Compared with the striking difference in isoflavones, more easily accessible dietary antioxidants, including tocopherols, carotenoids and retinol, differed only minimally or not at all in the three groups. CONCLUSIONS: ESRD patients appear to accumulate isoflavones as a function of dietary soya intake, resulting in blood concentrations that are higher than those reported in subjects with preserved kidney function. Even in the presence of very elevated total isoflavone levels, the concentrations of the unconjugated and sulphated fractions are comparable to those of healthy subjects. A discrepancy is noted between accumulation of soya isoflavones and other more common lipid-soluble antioxidant micronutrients.

Feld, L. G., D. Stablein, et al. "Renal transplantation in children from 1987-1996: the 1996 Annual Report of the North American Pediatric Renal Transplant Cooperative Study." Pediatr Transplant. 1997 Nov;1(2):146-62.

The 1996 Annual Report of the North

American Pediatric Renal Transplant Cooperative Study (NAPRTCS) summarizes data voluntarily collected from 130 centers on 4329 children and adolescent patients who received renal transplants on or after January 1, 1987. This report updates information on transplants; data on dialysis and chronic renal insufficiency have, for the first time, been reported separately (in submission). The NAPRTCS registry shows that the majority of pediatric renal transplants are performed in children above 6 years of age (73%). The most frequent diagnoses include obstructive uropathy (16%), aplastic/hypoplastic/dysplastic kidneys (16%), and focal segmental glomerulosclerosis (12%). Pre-emptive transplantation was performed in 24% of patients. Triple drug maintenance therapy with prednisone, cyclosporine and azathioprine was used by >70% of all transplant recipients throughout 7 years of follow-up. Fifty-six per cent of transplant recipients were rehospitalized during months 1-5 (51% live donor (LD), 62% cadaver donor (CD)), with rejection and infection as the main causes. In the period 30-35 months post-transplant, 19-22% of patients (163 LD, 185 CD) were rehospitalized. The median time to the first rejection was 46 days for CD transplants and 377 days for LD grafts (p<.001). Six-year graft survival rates were 73% and 56% for LD grafts and CD grafts, respectively (p<.001). The overall growth deficit was constant over a period of 60 months. However, children transplanted under 5 years of age reduce their height deficit by about one-third compared to an increase in height deficit of up to 22% for older children. The NAPRTCS data analysis also demonstrates a delay in first rejection episodes in LD compared to CD transplants, and a steady improvement in CD graft survival over the past 5 years in pediatric transplant recipients.

Frankenfield, D. L., S. H. Roman, et al. "Disparity in outcomes for adult Native American hemodialysis patients? Findings from the ESRD Clinical Performance Measures Project, 1996 to 1999." Kidney Int. 2004 Apr;65(4):1426-34.

BACKGROUND: There is a paucity of information regarding the quality of care for Native American hemodialysis patients. Outcomes, including 1-year hospitalization and mortality, for adult Native American in-center hemodialysis patients selected for the Centers for Medicare and Medicaid (CMS) end-stage renal disease (ESRD) Clinical Performance Measures (CPM) Project were compared to those for white and black patients to determine if disparity in care existed for this group. METHODS: Clinical data were abstracted from medical records for the last quarters of 1995 to 1998 and linked to United States Renal Data System (USRDS) data files for data on comorbidities and 1-year hospitalization and mortality. Associations of race were tested by bivariate analyses and multivariate logistic regression and Cox proportional hazard modeling. RESULTS: Two percent (467 of 27876) of patients were Native American, 37% black, and 51% white. Native American, compared to black and white patients, were more likely to have diabetes mellitus as the cause of ESRD (72%, 37%, and 38%, respectively, P < 0.01). In multivariate analyses, Native American patients were more likely to achieve a mean urea reduction ratio (URR) > or = 65% compared to whites (referent) [hazards ratio (HR) (95% CI) 1.7 (1.3, 2.2)] and be dialyzed with an arteriovenous fistula [HR (95% CI) 1.7 (1.2, 2.5)]. They were as likely as Whites to achieve a mean hematocrit > or =33% and a mean serum albumin > or =4.0/3.7 g/dL. In multivariate analyses, Native Americans were no more likely to be hospitalized or die during the follow-up period than whites. CONCLUSION: These data suggest that adult Native American hemodialysis patients experience equivalent or better dialytic care and are no more likely to experience 1-year hospitalization or mortality compared to whites.

Freeman, W. L. and G. M. Hosey "Diabetic complications among American Indians of Washington, Oregon, and Idaho. Prevalence of retinopathy, end-stage renal disease, and amputations." Diabetes Care. 1993 Jan;16(1):357-60.

OBJECTIVE: To estimate the prevalence of severe diabetic complications. RESEARCH DESIGN AND METHODS: We surveyed the data systems of the IHS and local care providers to identify all AI/AN people with any of three diabetic complications: retinopathy needing one or more laser treatments, ESRD needing dialysis, and one or more LEAs. We calculated prevalence rates that were sex-age adjusted to the U.S. population for total sample, each community, gender, and culture area. RESULTS: Of the population-based complete sample with diabetes, 1.7% had retinopathy, 1% ESRD, and 4% LEA. Complication rates among the culture areas were not statistically different. The LEA rate among diabetic men (5.8%) was higher than that among women (2.3%). The odds ratio was 2.2 (95% CI 1.2-4.2). One community had an extraordinarily high LEA rate of 16%. CONCLUSIONS: This study showed that IHS can use its data systems to estimate prevalence of diabetic complications and identify population groups with higher prevalence rates. The data led the IHS clinic with the high LEA rate to start a program to prevent amputations. We suggest quality assurance activities based on the methods of this study.

Furth, S. L., D. Stablein, et al. "Adverse clinical outcomes associated with short stature at dialysis initiation: a report of the North American Pediatric Renal Transplant Cooperative Study." Pediatrics. 2002 May;109(5):909-13.

OBJECTIVE: We examined whether height less than the 1% for age (z score <-2.5) at dialysis initiation predicts adverse clinical outcomes for children with kidney failure. DESIGN: National cohort study of children initiating dialysis, followed for a minimum of 1 month to a maximum of 8 years. SETTING: Voluntary consortium of pediatric nephrology centers across the United States and Canada in the North American Pediatric Renal Transplant Cooperative Study. PATIENTS: Two thousand three hundred six patients </=21 years old initiated on dialysis between 1992 and 2000. Outcome Measures. School attendance, transplant wait listing, hospitalization rates, and survival. RESULTS: Although there were no differences in transplant wait listings, school-aged children with short stature were less likely to be attending school full-time than were their counterparts with more normal height, even if medically capable. Short-stature patients have significantly more hospital days per month of dialysis follow-up than those patients with better growth (mean: 1.92 vs 1.58; median: 0.73 vs 0.44 hospital days per month of follow-up). Cox proportional hazards regression analyses show that children with height <1% for age have a twofold higher risk of death than those with more normal height, even after controlling for patient age, race, gender, cause of end-stage renal disease, wait list status, and dialysis modality. CONCLUSIONS: Poor growth during chronic renal insufficiency leading to short stature at dialysis initiation is a marker for a more complicated clinical course for children with kidney failure. Aggressive nutritional support and early referral to a nephrologist to optimize growth may improve long-term outcomes for children with chronic kidney disease.

Golper, T. A., A. B. Saxena, et al. "Systematic barriers to the effective delivery of home dialysis in the United States: a report from the Public Policy/Advocacy Committee of the North American Chapter of the International Society for Peritoneal Dialysis." Am J Kidney Dis. 2011 Dec;58(6):879-85. doi: 10.1053/j.ajkd.2011.06.028. Epub 2011 Sep 8.

Home dialysis, currently underused in the United States compared with other industrialized countries, likely will benefit from the newly implemented US prospective payment system. Not only is home dialysis less expensive from the standpoint of pure dialysis costs, but overall health system costs may be decreased by more subtle benefits, such as reduced transportation. However, many systematic barriers exist to the successful delivery of home dialysis. We organized these barriers into the categories of educational barriers (patient and providers), governmental/regulatory barriers (state and federal), and barriers specifically related to the philosophies and business practices of dialysis providers (eg, staffing, pharmacies, supplies, space, continuous quality improvement practices, and independence). All stakeholders share the goal of delivering home dialysis therapies in the most cost- and clinically effective and least problematic manner. Identification and recognition of such barriers is the first step. In addition, we have suggested action plans to stimulate the kidney community to find even better solutions so that collectively we may overcome these barriers.

Hanevold, C. D., P. L. Ho, et al. "Obesity and renal transplant outcome: a report of the North American Pediatric Renal Transplant Cooperative Study." Pediatrics. 2005 Feb;115(2):352-6.

OBJECTIVE: Obesity is increasing in the end-stage renal disease population. Studies that have evaluated the effect of obesity on transplant outcomes in adults have yielded varying results. This issue has received little attention in the pediatric population. METHODS: We performed a retrospective study of the effect of obesity on pediatric renal transplant outcomes using the North American Pediatric Renal Transplant Cooperative Study database. Registry data from 1987 through 2002 on 6658 children aged 2 to 17 years were analyzed. Obesity was defined by a BMI >95th percentile for age. RESULTS: Overall, 9.7% were obese with an increase noted in recent years (12.4% after 1995 vs 8% before 1995). Obese children were significantly younger and shorter and had been on dialysis for a longer time than nonobese children. There was no significant difference in the overall patient and allograft survival between the 2 groups. However, obese children aged 6 to 12 years had higher risk for death than nonobese patients (adjusted relative risk: 3.65 for living donor; adjusted relative risk: 2.94 for cadaver), and death was more likely as a result of cardiopulmonary disease (27% in obese vs 17% in nonobese). Overall, graft loss as a result of thrombosis was more common in obese as compared with nonobese (19% vs 10%). CONCLUSIONS: Obesity is an increasing problem in children who present for transplantation and may have an adverse effect on allograft and patient survival.

Hardinger, K. L., R. J. Stratta, et al. "Renal allograft outcomes in African American versus Caucasian transplant recipients in the tacrolimus era." Surgery. 2001 Oct;130(4):738-45; discussion 745-7.

METHODS: Between January 1995 and December 1999, 185 kidney transplants were performed with tacrolimus (TAC)-based immunosuppression including 120 African American (AA, 65%) and 65 Caucasian recipients (C, 35%). Mean follow-up was 34 months. The AA group was characterized by a higher incidence of renal disease due to hypertension (72% AA vs 37% C, P <.001), pretransplant dialysis (95% AA vs 82% C, P =.003), waiting time (1.9 years AA vs 1.1 years C, P =.02), cadaveric donation (88% AA vs 68% C, P =.01), HLA mismatching (mean 3.5 AA vs 2.4 C, P <.001), and delayed graft function (DGF; 50% AA vs 22% C, P =.001). RESULTS: The 5-year actuarial patient and graft survival rates were 96% AA versus 83% C (P = NS) and 83% AA versus 75% C, (P = NS), respectively. The incidence of acute rejection (21% AA vs 12% C, P = NS) and mean time to acute rejection (12 months AA vs 11 months C) were similar. Although the incidence of chronic allograft nephropathy (CAN) was comparable (7% AA vs 5% C), the mean time to CAN was shorter in AA recipients (18 months AA vs 37 months C, P =.03). CONCLUSIONS: These results suggest marked improvement in post-transplant outcomes in the TAC era in patients with multiple immunologic risk factors including AA ethnicity, cadaveric donor source, DGF, and HLA mismatching.

Harmon, W. E., D. Stablein, et al. "Graft thrombosis in pediatric renal transplant recipients. A report of the North American Pediatric Renal Transplant Cooperative Study." Transplantation. 1991 Feb;51(2):406-12.

Data from the North American Pediatric Renal Transplant Cooperative Study were analyzed to determine the incidence and possible causes of graft thrombosis in pediatric renal transplant recipients. Between January 1987, and November 1989, 1045 renal transplants in recipients less than 18 years of age were registered in the study, including 484 living-related donor and 561 cadaver donor transplants. There were 213 graft failures (67 LRD, 146 CAD), and of these 27 were caused by thrombosis (8 LRD, 19 CAD). Thrombosis occurred in 2.6% of all transplants and accounted for 22.5% (27/120) of all graft failures that occurred in the first 60 days following transplantation. Among the LRD recipients, there were 24 graft failures in those less than 6 years of age, and 7 of these were due to thrombosis, compared to 1 thrombosis in 43 graft losses in recipients greater than 6 years (P less than 0.01). In recipients less than 6 years old, the thrombosis rate for those who received transplants without prior dialysis was 4/32 (12.5%) versus 3/109 (2.8%) with prior dialysis. Among the CAD recipients, age of the recipient did not influence graft thrombosis. Donor age, however, was strongly associated with the risk of thrombosis, as was cold storage time. Donor age and cold storage time were not independently distributed within the population, with longer cold storage times required for younger donors. Both factors, however, independently affected outcome. Other factors, including prior nephrectomy, prior transplant, center size, and use of cyclosporine were not associated with increased risk of thrombosis in LRD or CAD recipients. We conclude that graft thrombosis is an important cause of renal graft loss in children. In LRD transplants the risk of graft thrombosis is increased in recipients less than 6 years old, and preliminary data suggest that the lack of prior dialysis may be associated with thrombotic risk in these patients. CAD transplant recipients who receive grafts from young donors, particularly those with long cold storage time, are at increased risk for graft failure due to thrombosis.

Henderson, L. W. "Future developments in the treatment of end-stage renal disease: a North American perspective." Am J Kidney Dis. 2000 Apr;35(4 Suppl 1):S106-16.

New technology for the treatment of end-stage renal disease will need to be pharmacoeconomically persuasive in reducing the life-cost of treatment to obtain entry into the market. Increased automation, with closed-loop sensing technology, will occur in the near term. Clearance-based terminology for quantifying performance of equipment will give way to direct quantification of toxin removal. Experiments on the frequency and duration of treatment will redefine what is considered to be adequate therapy in terms other than simple urea removal. Near-term changes in current vascular access technology will be driven by the current cost of access failure. Automated peritoneal dialysis will displace continuous ambulatory peritoneal dialysis, and online compounding of solution for use is likely for both hemodialysis and peritoneal dialysis. In a longer time frame these technologies will merge. Xenografting from the pig will be a reality, and gene therapy of the mesothelium will provide a more user-friendly therapy for end-stage renal disease.

Ichiho, H. M., F. T. Roby, et al. "An assessment of non-communicable diseases, diabetes, and related risk factors in the territory of American Samoa: a systems perspective." Hawaii J Med Public Health. 2013 May;72(5 Suppl 1):10-8.

Non-communicable diseases (NCD) have been identified as a health emergency in the US-affiliated Pacific Islands (USAPI).1 This assessment, funded by the National Institutes of Health, was conducted in American Samoa and describes the burden of selected NCDs (ie, diabetes, heart disease, hypertension, stroke, and chronic kidney disease); and assesses the system of service capacity and activities regarding service delivery, data collection and reporting as well as identifies the issues needing to be addressed. Findings reveal that nutrient-poor diet, lack of physical activity, and other lifestyle behaviors are associated with overweight and obesity and subsequent NCDs that impact the morbidity and mortality of the population. The leading causes of death include heart disease, diabetes, cancer and stroke. Population surveys show that 93% of the adults are overweight or obese and 47% have diabetes. Among public school children, 44.6% are overweight or obese. Other data show that between 2006 and 2010, there was a 33% increase in the number of patients receiving hemodialysis. Other findings show significant gaps in the system of administrative, clinical, data, and support services to address these NCDs. There is a paucity of health plans, policy and procedure manuals, coordination among providers, and lack of common standards of care. The combined administrative and clinical system of service needs were identified and prioritized. They include the need for a Territory-wide health strategy and plan, need for standards of care, and a need for collaborative team approach for the treatment and management of patients with diabetes and other chronic diseases.

Iglehart, J. K. "The American health care system. The End Stage Renal Disease Program." N Engl J Med. 1993 Feb 4;328(5):366-71.

Josephson, M. A., M. A. Perazella, et al. "American Society of Nephrology Quiz and Questionnaire 2013: transplantation." Clin J Am Soc Nephrol. 2014 Jul;9(7):1319-27. doi: 10.2215/CJN.12641213. Epub 2014 Apr 17.

The nephrology quiz and questionnaire remains an extremely popular session for attendees of the Annual Meeting of the American Society of Nephrology. As in past years, the conference hall was overflowing with interested audience members. Topics covered by expert discussants included electrolyte and acid-base disorders, glomerular disease, ESRD/dialysis, and transplantation. Complex cases representing each of these categories along with single best answer questions were prepared by a panel of experts. Before the meeting, program directors of United States nephrology training programs answered questions through an Internet-based questionnaire. A new addition to the nephrology quiz and questionnaire was participation in the questionnaire by nephrology fellows. To review the process, members of the audience test their knowledge and judgment on a series of case-oriented questions prepared and discussed by experts. Their answers are compared in real time using audience response devices with the answers of nephrology fellows and training program directors. The correct and incorrect answers are then briefly discussed after the audience responds, and the results of the questionnaire are displayed. This article recapitulates the session and reproduces its educational value for the readers of CJASN. Enjoy the clinical cases and expert discussions.

Josephson, M. A., M. A. Perazella, et al. "American society of Nephrology Quiz and Questionnaire 2014: transplantation." Clin J Am Soc Nephrol. 2015 May 7;10(5):903-9. doi: 10.2215/CJN.12221214. Epub 2015 Apr 10.

The Nephrology Quiz and Questionnaire remains an extremely popular session for attendees of the Annual Kidney Week Meeting of the American Society of Nephrology. Once again, the conference hall was overflowing with audience members and eager quiz participants. Topics covered by the expert discussants included electrolyte and acid-base disorders, glomerular disease, ESRD/dialysis, and transplantation. Complex cases representing each of these categories along with single best answer questions were prepared and submitted by the panel of experts. Before the meeting, program directors of United States nephrology training programs and nephrology fellows answered the questions through an internet-based questionnaire. During the live session, members of the audience tested their knowledge and judgment on a series of case-oriented questions prepared and discussed by experts. They compared their answers in real time using audience response devices with the answers of the nephrology fellows and training program directors. The correct and incorrect answers were then discussed after the audience responses and the results of the questionnaire were displayed. As always, the audience, lecturers, and moderators enjoyed this educational session. This article recapitulates the session and reproduces its educational value for the readers of CJASN. Enjoy the clinical cases and expert discussions.

Kalantar-Zadeh, K., E. Golan, et al. "Survival disparities within American and Israeli dialysis populations: learning from similarities and distinctions across race and ethnicity." Semin Dial. 2010 Nov-Dec;23(6):586-94. doi: 10.1111/j.1525-139X.2010.00795.x.

There are counterintuitive but consistent observations that African American maintenance dialysis patients have greater survival despite their less favorable socioeconomic status, high burden of cardiovascular risks including hypertension and diabetes, and excessively high chronic kidney disease prevalence. The fact that such individuals have a number of risk factors for lower survival and yet live longer when undergoing dialysis treatment is puzzling. Similar findings have been made among Israeli maintenance dialysis patients, in that those who are ethnically Arab have higher end-stage renal disease but exhibit greater survival than Jewish Israelis. The juxtaposition of these two situations may provide valuable insights into racial/ethnic-based mechanisms of survival in chronic diseases. Survival advantages of African American dialysis patients may be explained by differences in nutritional status, inflammatory profile, dietary intake habits, body composition, bone and mineral disorders, mental health and coping status, dialysis treatment differences, and genetic differences among other factors. Prospective studies are needed to examine similar models in other countries and to investigate the potential causes of these paradoxes in these societies. Better understanding the roots of racial/ethnic survival differences may help improve outcomes in both patients with chronic kidney disease and other individuals with chronic disease states.

Kazley, A. S., E. E. Johnson, et al. "Health care provider perception of chronic kidney disease: knowledge and behavior among African American patients." BMC Nephrol. 2014 Jul 10;15:112. doi: 10.1186/1471-2369-15-112.

BACKGROUND: Chronic Kidney disease (CKD) is prevalent in the population, but also disproportionately affects African Americans. Disparities in care of chronic kidney disease and transplant for African Americans have also been reported. The purpose of this study is to determine the knowledge and reactions of chronic kidney disease patients regarding their disease, as perceived by nephrologists and clinic nurses in South Carolina. METHODS: Using a qualitative approach, key informant interviews were conducted with nephrologists, and three focus groups were held with nurses who specialize in chronic kidney disease. The results were recorded, transcribed, and analyzed using Qualrus software and the Grounded Theory Method. RESULTS: Dominant themes in the interviews and focus groups include: reaction to chronic kidney disease, differences in race, patient thoughts on dialysis, patient knowledge of types of treatment available, information availability, compliance to treatment, information source, and thoughts on kidney transplantation. The study found that the majority of clinicians agreed that there is typically a wide range of reactions in patients with chronic kidney disease. CONCLUSIONS: The majority of chronic kidney disease patients remain in denial of their diagnosis and do not want to agree to the necessary treatment to improve their condition. In addition, the clinicians reported that the incidence of chronic kidney disease is highest in the African American population and this population of patients typically gets their information on the disease from peers, others they have known that have had renal failure. We find clinicians report that patients typically do not remain compliant to recommended treatment regimens due to lack of knowledge and feelings of denial and fear, and frequently use religiosity as a coping mechanism. Silent progression and complexity of chronic kidney disease frequently result in many patients lacking essential knowledge and developing poor coping mechanisms to seek appropriate follow-up care and prevent progression and optimize outcome. Health care providers are aware of the barriers but may lack the tools and resources to overcome them.

Kist-van Holthe, J. E., P. L. Ho, et al. "Outcome of renal transplantation for Wilms' tumor and Denys-Drash syndrome: a report of the North American Pediatric Renal Transplant Cooperative Study." Pediatr Transplant. 2005 Jun;9(3):305-10.

In some children with bilateral Wilms' tumor, reduction of tumor burden cannot be accomplished without total nephrectomy. In Denys-Drash syndrome, nephrectomy is required for associated Wilms' tumor or after progression to end stage renal disease secondary to diffuse mesangial sclerosis because of risk of development of Wilms' tumor. Current recommendation is to wait at least 1-2 yr after completion of chemotherapy for Wilms' tumor before renal transplantation. The North American Pediatric Renal Transplant Cooperative Study dialysis (1992-2001) and transplant registries (1987-2002) were analyzed, comparing children 0-18 yr old with Wilms' tumor and Denys-Drash syndrome to other primary diagnoses. There were 37 children with Wilms' tumor and 33 with Denys-Drash syndrome in the dialysis registry. Of these, 10 children with Wilms' tumor and three with Denys-Drash syndrome did not receive a renal transplant and all died. The cause of death was Wilms' tumor in eight children with Wilms' tumor and in one with Denys-Drash syndrome. The transplant registry included 43 children with Wilms' tumor, 43 children with Denys-Drash syndrome, and 7469 patients with other diagnoses. Acute rejection, graft and patient survival profiles from all three groups at 6 months, 1 and 3 yr post-transplant were comparable. There were no graft failures or deaths because of recurrent Wilms' tumor in the Drash group. There was one death with Wilms' tumor in the Wilms' group - a 2.5-yr-old child transplanted after 6 months of dialysis who died of Wilms' <6 months after renal transplantation. In conclusion, most children dialyzed because of Wilms' tumor and Denys-Drash syndrome who did not receive a renal transplant died of Wilms' tumor. However, the outcomes of children with Wilms' tumor and Denys-Drash syndrome who proceeded to renal transplantation are comparable with children with other diagnoses, with no graft failures because of recurrence and only one death from Wilms' tumor in a Wilms' patient who received only a short course of dialysis prior to transplantation. Current practices in children with Wilms' tumor and Denys-Drash syndrome appear to be on target to portend good outcome following renal transplantation.

Langlois, V., D. Geary, et al. "Polyuria and proteinuria in cystinosis have no impact on renal transplantation. A report of the North American Pediatric Renal Transplant Cooperative Study." Pediatr Nephrol. 2000 Nov;15(1-2):7-10.

Because cystinotic patients are polyuric and may have severe proteinuria, each of which is a potential risk factor for graft thrombosis, preemptive transplantation for them is questionable. The objectives of this study were to characterize the changes in urine volume and protein excretion at various stages of cystinosis, determine whether there is serologic evidence of hypercoagulability, and review the clinical experience in renal transplantation in cystinotic children. The records of cystinotic patients followed at the Montreal Children's Hospital between 1992 and 1998 were reviewed. Urinary volume, protein excretion, and coagulation markers were collected to determine the glomerular filtration rate (GFR) >50 ml/min/1.73 m2, <20 ml/min/1.73 m2, before and after starting dialysis. In addition, graft failure and graft thrombosis rates were obtained from the North American Pediatric Renal Transplant Cooperative Study (NAPRTCS) database. Urinary volume and protein excretion remained elevated throughout different phases of the disease. Coagulation factors were within normal limits for all patients. In the NAPRTCS database there were four thromboses among the 114 patients transplanted cystinotic patients. All these occurred in cadaveric grafts and only one occurred after preemptive transplantation. Despite polyuria and severe proteinuria, children with cystinosis do not appear to be at an increased risk of graft failure or graft thrombosis.

Malat, G. E., C. Culkin, et al. "African American kidney transplantation survival: the ability of immunosuppression to balance the inherent pre- and post-transplant risk factors." Drugs. 2009 Oct 22;69(15):2045-62. doi: 10.2165/11318570-000000000-00000.

Among organ transplant recipients, the African American population historically has received special attention. This is because secondary to their disposition to certain disease states, for example hypertension, an African American patient has a propensity to reach end-stage renal disease and require renal replacement earlier than a Caucasian patient. Regardless of the initiative to replace dialysis therapy with organ transplantation, the African American patient has many barriers to kidney transplantation, thus extending their time on dialysis and waiting time on the organ transplant list. These factors are among the many negative causes of decreased kidney graft survival, realized before kidney transplantation. Unfortunately, once the African American recipient receives a kidney graft, the literature documents that many post-transplant barriers exist which limit successful outcomes. The primary post-transplant barrier relates to designing proper immunosuppression protocols. The difficulty in designing protocols revolves around (i) altered genetic metabolism/lower absorption, (ii) increased immuno-active cytokines and (iii) detrimental effects of noncompliance. Based on the literature, dosing of immunosuppression must be aggressive and requires a diligent practitioner. Research has indicated that, despite some success with proven levels of immunosuppression, the African American recipient usually requires a higher 'dose per weight' regimen. However, even with aggressive immunosuppressant dosing, African Americans still have worse outcomes than Caucasian recipients. Additionally, many of the targeted sites of action that immunosuppression exerts its effects on have been found to be amplified in the African American population. Finally, noncompliance is the most discouraging inhibitor of long-term success in organ transplantation. The consequences of noncompliance are biased by ethnicity and affect the African American population more severely. All of these factors are discussed further in this review in the hope of identifying an ideal healthcare model for caring for the African American transplant recipient, from diagnosing chronic kidney disease through to successful kidney graft outcomes. An indepth review of the literature is described and organized in a fashion that highlights all of the issues affecting success in African Americans. The compilation of the literature in this review will enable the reader to get closer to understanding the caveats of kidney transplantation in the African American patient, but falls short of delivering an actual 'equation' for post-transplant care in an African American kidney recipient.

Manley, H. J. and M. L. McClaran "Determination of VIT 45 (IND#63,243 - American Regent) removal by closed loop in vitro hemodialysis system." Int J Artif Organs. 2006 Nov;29(11):1062-6.

BACKGROUND: Intravenous iron is typically administered during the hemodialysis (HD) procedure. The extent of VIT 45, a novel intravenous iron formulation, removal by high-flux (HF) or high-efficiency (HE) dialysis membranes at various ultrafiltration rates (UFR) is unknown. METHODS: An in vitro HD system was constructed to determine the dialyzability of iron from a normal saline compartment (NSC) containing 1000 mg iron of VIT 45. The in vitro system utilized a 6-L closed-loop SBS system that was subject to 4 different HD conditions conducted over 4 hours: HE membrane + 0 ml/h UFR; HE membrane + 500 ml/h UFR; HF membrane + 0 ml/h UFR; HF membrane + 500 ml/h UFR. Blood flow and dialysate flow rates were 500 ml/min and 800 ml/min, respectively. The dialysate compartment was a 6-L closed-loop system. A volumetric HD machine controlled all blood, dialysate, and ultrafiltration rates. NSC and dialysate compartment samples were taken at various time points and iron elimination rate (khd) and HD clearance (Clhd) was determined. Iron removal from the NSC > 15% was considered clinically significant. RESULTS: The percent removal of iron from the NSC was < 0.5% at all time points in the study. Dialysate recovery of iron was negligible: 1.7-5.1 mg. VIT 45 removal elimination rates from NSC were less than -0.001 h(-1) (range -0.0002 +/- 0.0001 to -0.0001 +/- 0.0002 h (-1)) for all study conditions. Dialyzer type or UFR did not effect iron removal. CONCLUSION: HF or HE dialysis membranes do not remove clinically significant amounts of VIT 45 over a 4-hour in vitro HD session. This effect remained constant even controlling for UFR up to 500 ml/hour. VIT 45 is not dialyzed by HE or HF dialysis membranes irrespective of UFR.

Mazzuchi, N., E. Schwedt, et al. "Latin American Registry of dialysis and renal transplantation: 1993 annual dialysis data report." Nephrol Dial Transplant. 1997 Dec;12(12):2521-7.

BACKGROUND: The Latin American Registry of Dialysis and Transplantation was created in October 1991 and comprises the National Societies of Nephrology from 21 countries with a total population of 468.56 million inhabitants. METHODS: This report includes data from 21,181 patients from Argentina, Brazil, Chile, El Salvador, Panama, Paraguay, Peru, Puerto Rico, Uruguay, and Venezuela who were receiving chronic dialysis treatment during 1993. Data was collected by individual patient questionnaires except from Chile and Brazil where the data was obtained from a local centre questionnaire. RESULTS: The prevalence rate averaged 131.1 per million population. The mean age of the 8972 incident patients was 50.5 years, with 58.2% males. The more frequent causes of renal failure were glomerulopathies (22.6%), vascular nephropathy (20.9%) and diabetes (16.9%). Haemodialysis was the most used treatment (88.3%). Gross mortality was 21.1% and the more frequent causes of death were cardiac complications and infections. The analysis of mortality risk factors using a logistic regression model showed that diabetics patients older than 65 years had the highest probability of death (43.0%) and patients with glomerulonephritis, younger than 65 years had the lowest (8.0%). The adjusted mortality rate was 241 deaths/1000 patient-years at risk when the USRDS 1987-1989 white mortality rate by age groups and primary diseases was used as standard. CONCLUSION: In spite of the economic difficulties, very important efforts have been made to treat ESRD patients and gross mortality statistics in some countries are similar to those reported by other regional registries.

McCormick, B. B., P. A. Brown, et al. "Use of the embedded peritoneal dialysis catheter: experience and results from a North American Center." Kidney Int Suppl. 2006 Nov;(103):S38-43.

Since 2000, the Ottawa Hospital Home Dialysis Program has used a variation on the embedded peritoneal dialysis catheter technique described by Moncrief et al. In this paper, we describe our approach to placement of peritoneal access and report our experience with 304 embedded catheters placed between January 2000 and December 2003. We review the advantages and disadvantages of this technique and describe factors that have been important to the success of our program.

Mehrotra, R., R. J. Glassock, et al. "American Society of Nephrology quiz and questionnaire 2012: renal replacement therapy." Clin J Am Soc Nephrol. 2013 Sep;8(9):1632-6. doi: 10.2215/CJN.00450113. Epub 2013 Apr 4.

Presentation of the Nephrology Quiz and Questionnaire has become an annual tradition at the meetings of the American Society of Nephrology. It is a very popular session judged by consistently large attendance. Members of the audience test their knowledge and judgment on a series of case-oriented questions prepared and discussed by experts. They can also compare their answers in real time, using audience response devices, with the answers of program directors of nephrology training programs in the United States acquired through an Internet-based questionnaire. Topics presented here include fluid and electrolyte disorders, glomerular diseases, transplantation, and ESRD and dialysis. Cases representing each of these categories along with single best answer questions were prepared by a panel of experts (Drs. Palmer, Fervenza, and Brennan and Mehrotra, respectively). The correct and incorrect answers then were briefly discussed after the audience responses, and the results of the questionnaire were displayed. This article tries to recapitulate the session and reproduce its educational value for a larger audience-the readers of the CJASN.

Mitsnefes, M. and D. Stablein "Hypertension in pediatric patients on long-term dialysis: a report of the North American Pediatric Renal Transplant Cooperative Study (NAPRTCS)." Am J Kidney Dis. 2005 Feb;45(2):309-15.

BACKGROUND: Elevated blood pressure (BP) is frequent in children on long-term dialysis therapy. However, the prevalence of hypertension and status of BP control in these patients are lacking. Using the North American Pediatric Renal Transplantation Cooperative Study database, we determined the prevalence of hypertension and assessed risk factors for elevated BP during long-term dialysis therapy in children. METHODS: The study cohort included 3,743 patients (age, 0 to 21 years). Uncontrolled hypertension is defined as BP equal to or greater than age-, sex-, and height-specific 95th percentiles; controlled hypertension was considered in children who were administered antihypertensive medications, but had BP less than the 95th percentile. RESULTS: A total of 76.6% of patients had either uncontrolled (56.9%) or controlled (19.7%) hypertension at baseline. Normotensive children at baseline had significant BP increases, whereas hypertensive children at baseline had significant BP decreases during the first year of dialysis therapy. BP did not change significantly after 1 year of dialysis therapy; 51% of patients had uncontrolled hypertension after 1 year of maintenance dialysis therapy. Logistic regression analysis shows that baseline hypertensive status and use of BP medications are both large significant risk factors for subsequent hypertension. Other risk factors include young age, acquired cause of renal failure, black race, initiation of dialysis therapy in 1992 to 1997, and hemodialysis as a mode of renal replacement therapy. CONCLUSION: Hypertension is very prevalent and difficult to control in children on dialysis therapy. Results also suggest that the initial months on maintenance dialysis therapy might be the window of opportunity when careful monitoring and aggressive management of hypertension would allow achieving BP control in these patients.

Nee, R., J. Martinez-Osorio, et al. "Survival Disparity of African American Versus Non-African American Patients With ESRD Due to SLE." Am J Kidney Dis. 2015 Oct;66(4):630-7. doi: 10.1053/j.ajkd.2015.04.011. Epub 2015 May 19.

BACKGROUND: A recent study showed an increased risk of death in African Americans compared with whites with end-stage renal disease (ESRD) due to lupus nephritis (LN). We assessed the impact of age stratification, socioeconomic factors, and kidney transplantation on the disparity in patient survival among African American versus non-African American patients with LN-caused ESRD, compared with other causes. STUDY DESIGN: Retrospective cohort study. SETTING & PARTICIPANTS: Using the US Renal Data System database, we identified 12,352 patients with LN-caused ESRD among 1,132,202 patients who initiated maintenance dialysis therapy from January 1, 1995, through December 31, 2006, and were followed up until December 31, 2010. PREDICTORS: Baseline demographics and comorbid conditions, Hispanic ethnicity, socioeconomic factors (employment status, Medicare/Medicaid insurance, and area-level median household income based on zip code as obtained from the 2000 US census), and kidney transplantation as a time-dependent variable. OUTCOME: All-cause mortality. MEASUREMENTS: Multivariable Cox and competing-risk regressions. RESULTS: Mean duration of follow-up in the LN-caused ESRD and other-cause ESRD cohorts were 6.24+/-4.20 (SD) and 4.06+/-3.61 years, respectively. 6,106 patients with LN-caused ESRD (49.43%) and 853,762 patients with other-cause ESRD (76.24%) died during the study period (P<0.001). Patients with LN-caused ESRD were significantly younger (mean age, 39.92 years) and more likely women (81.65%) and African American (48.13%) than those with other-cause ESRD. In the fully adjusted multivariable Cox regression model, African American (vs non-African American) patients with LN-caused ESRD had significantly increased risk of death at age 18 to 30 years (adjusted HR, 1.43; 95% CI, 1.24-1.65) and at age 31 to 40 years (adjusted HR, 1.17; 95% CI, 1.02-1.34). Among patients with other-cause ESRD, African Americans were at significantly increased risk at age 18 to 30 years (adjusted HR, 1.17; 95% CI, 1.11-1.22). LIMITATIONS: We used zip code-based median household income as a surrogate for patient income. Residual socioeconomic confounders may exist. CONCLUSIONS: African Americans are at significantly increased risk of death compared with non-African Americans with LN-caused ESRD at age 18 to 40 years, a racial disparity risk that is 10 years longer than that in the general ESRD population. Accounting for area-level median household income and transplantation significantly attenuated the disparity in mortality of African American versus non-African American patients with LN-caused ESRD.

Nissenson, A. R., R. M. Lindsay, et al. "Sodium ferric gluconate complex in sucrose is safe and effective in hemodialysis patients: North American Clinical Trial." Am J Kidney Dis. 1999 Mar;33(3):471-82.

A new intravenous (i.v.) iron compound, sodium ferric gluconate complex in sucrose (Ferrlecit, R&D Laboratories, Inc, Marina Del Rey, CA), was administered over 8 consecutive dialysis days in equally divided doses to a total of either 0.5 or 1.0 g in a controlled, open, multicenter, randomized clinical study of anemic, iron-deficient hemodialysis patients receiving recombinant human erythropoietin (rHuEPO). Effectiveness was assessed by increase in hemoglobin and hematocrit and changes of iron parameters. Results were compared with historically matched controls on oral iron. High-dose i.v. treatment with 1.0 g sodium ferric gluconate complex in sucrose resulted in significantly greater improvement in hemoglobin, hematocrit, iron saturation, and serum ferritin at all time points, as compared with low-dose i.v. (0.5 g) or oral iron treatment. Despite an initial improvement in mean serum ferritin and transferrin saturation, 500 mg i.v. therapy did not result in a significant improvement in hemoglobin at any time. Eighty-three of 88 patients completed treatment with sodium ferric gluconate complex in sucrose: 44 in the high-dose and 39 in the low-dose group. Two patients discontinued for personal reasons. The other three discontinued because of a rash, nausea and rash, and chest pain with pruritus, respectively. In comparison with 25 matched control patients, adverse events could not be linked to drug therapy, nor was there a dose effect. In conclusion, sodium ferric gluconate complex in sucrose is safe and effective in the management of iron-deficiency anemia in severely iron-deficient and anemic hemodialysis patients receiving rHuEPO. This study confirms the concepts regarding iron therapy expressed in the National Kidney Foundation Dialysis Outcomes Quality Initiative (NKF-DOQI) that hemodialysis patients with serum ferritin below 100 ng/mL or transferrin saturations below 18% need supplementation with parenteral iron in excess of 1.0 g to achieve optimal response in hemoglobin and hematocrit levels.

Obialo, C. I., A. T. Tagoe, et al. "Adequacy and survival of autogenous arteriovenous fistula in African American hemodialysis patients." ASAIO J. 2003 Jul-Aug;49(4):435-9.

In African American hemodialysis patients, the prevalence of autogenous arteriovenous fistula (AVF) use is lower yet AVF complications are higher. However, the adequacy and survival rates of AVF in African American patients have not been clarified. These rates were evaluated in this study. A prospective surveillance of AVF was conducted at the Morehouse School of Medicine affiliated dialysis units. A database was generated to adequately document the dates of AVF creation, cannulation, and failure; anatomic fistula sites; and demographic and pertinent clinical information. A total of 167 AVF were created in 140 African American patients between 1997 and 2001. The mean age of the patients was 56 +/- 14 (21-83) years, and the mean duration of follow-up was 40 +/- 3 (1-200) weeks. Only 92 of 167 (55%) AVF were adequate for cannulation; 12% (20 of 167) failed to mature and 33% (55 of 167) developed early failure. Unassisted primary patency rates at 6 and 12 months were 85% and 61%, respectively. Both fistula adequacy and survival were greater in younger (aged < 65 years), male patients and in nondiabetic patients, but the differences were not significant. Logistic regression analysis showed that advanced age (> or = 65 years), female gender, and diabetic state did not significantly alter AVF adequacy. However, the presence of peripheral vascular disease adversely affected AVF adequacy [Odds Ratio 0.4 (confidence interval 0.2-1.0), p = 0.048]. The adequacy and survival rates of AVF in African Americans are comparable with those reported in other populations. Fistula adequacy and survival appear to be independent of ethnicity but dependent on individual comorbid conditions and the integrity of the vasculature. Discriminant AVF site selection and adequate preoperative assessment of the vasculature remain crucial to AVF survival.

Padiyar, A., J. J. Augustine, et al. "Influence of African-American ethnicity on acute rejection after early steroid withdrawal in primary kidney transplant recipients." Transplant Proc. 2010 Jun;42(5):1643-7. doi: 10.1016/j.transproceed.2010.02.081.

BACKGROUND AND PURPOSE: The influence of African-American ethnicity on outcomes of kidney transplant recipients subjected to early steroid withdrawal remains controversial. Recent studies that suggest no higher risk among African Americans may be biased by recruitment of relatively small number of African Americans or by patient selection. We compared outcomes of African Americans to non-African Americans in a center in which early steroid withdrawal has become the standard of practice. METHODS: This was a single-center prospective study of 133 consecutive patients receiving primary kidney transplants between January 2006 and December 2008, followed for >or=3 months, and managed with a similar immunosuppression regimen that included induction antibody therapy, tacrolimus, mycophenolate mofetil, and withdrawal of steroids on postoperative day 5. Acute rejection and other outcomes were compared in African-American patients (n = 55) and compared with those of non-African-American patients (n = 78). RESULTS: During the first 12 months after early steroid withdrawal, African-American patients experienced a significantly higher cumulative incidence of acute rejection than non-African Americans (23.6% vs 7.7%; P = .020). Using multivariate logistic regression, ethnicity (odds ratio 3.33; P = .047) and HLA mismatch (odds ratio 1.44; P = .041) were significantly correlated with acute rejection independent of recipient age, gender, historical peak panel reactive antibody level (PRA) or PRA at time of transplant, time on dialysis, or donor source. CONCLUSIONS: African Americans are at increased risk of acute rejection after early steroid withdrawal, particularly when they receive kidneys from poorly matched donors.

Palmer, B. F., R. J. Glassock, et al. "American Society of Nephrology Quiz and Questionnaire 2012: electrolytes." Clin J Am Soc Nephrol. 2013 Jun;8(6):1048-53. doi: 10.2215/CJN.00460113. Epub 2013 Apr 11.

Presentation of the Nephrology Quiz and Questionnaire has become an annual tradition at the meetings of the American Society of Nephrology. It is a very popular session judged by consistently large attendance. Members of the audience test their knowledge and judgment on a series of case-oriented questions prepared and discussed by experts. They can also compare their answers in real time, using audience response devices, with the answers of program directors of nephrology training programs in the United States acquired through an Internet-based questionnaire. Topics presented here include fluid and electrolyte disorders, transplantation, and ESRD and dialysis. Cases representing each of these categories along with single best answer questions were prepared by a panel of experts (B.F.P. and Drs. Fervenza, Brennan, and Mehrotra, respectively). The correct and incorrect answers then were briefly discussed after the audience responses, and the results of the questionnaire were displayed. This article tries to recapitulate the session and reproduce its educational value for a larger audience--the readers of CJASN.

Patel, S. S. and J. L. Holley "Withholding and withdrawing dialysis in the intensive care unit: benefits derived from consulting the renal physicians association/american society of nephrology clinical practice guideline, shared decision-making in the appropriate initiation of and withdrawal from dialysis." Clin J Am Soc Nephrol. 2008 Mar;3(2):587-93. doi: 10.2215/CJN.04040907. Epub 2008 Feb 6.

Despite advances in the technology of dialysis, mortality in patients who develop acute renal failure remains high. Scoring systems have been developed to improve the ability to define prognosis in seriously ill patients with acute renal failure but predicting outcomes for individual patients is uncertain. Decisions to withhold or withdraw dialysis in seriously ill patients are difficult for patients, families, and health care providers. The clinical practice guideline, Shared Decision-Making in the Appropriate Initiation of and Withdrawal from Dialysis, provides evidence-based recommendations to aid nephrologists in discussions and the process of medical decision-making about starting and stopping dialysis. Estimating prognosis and addressing the issues of advance directives and patient and family preferences through the process of shared decision-making can clarify appropriate strategies for clinical management and interventions. Time-limited trials of dialysis may be an invaluable tool in this process. Increasing nephrologists' awareness of the guideline may facilitate decision-making around the issues of withholding and withdrawing dialysis in part by clarifying patients and situations in which it may be appropriate to withhold or withdraw dialysis.

Primack, W. A., K. E. Meyers, et al. "The US pediatric nephrology workforce: a report commissioned by the American Academy of Pediatrics." Am J Kidney Dis. 2015 Jul;66(1):33-9. doi: 10.1053/j.ajkd.2015.03.022. Epub 2015 Apr 22.

The US pediatric nephrology workforce is poorly characterized. This report describes clinical and nonclinical activities, motivations and disincentives to a career in pediatric nephrology, future workforce needs, trainee recruitment, and possible explanations for personnel shortages. An e-mail survey was sent in 2013 to all identified US-trained or -practicing pediatric nephrologists. Of 504 respondents, 51% are men, 66% are US graduates, and 73% work in an academic setting. About 20% of trained pediatric nephrologists no longer practice pediatric nephrology. Among the 384 respondents practicing pediatric nephrology full or part-time in the United States, the mean work week was 56.1+/-14.3 hours, with time divided between patient care (59%), administration (13%), teaching (10%), clinical research (9%), basic research (6%), and other medical activities (3%). Most (>85%) care for dialysis and transplantation patients. The median number of weeks annually on call is 16, and 29% work with one or no partner. One-third of US pediatric nephrologists (n=126) plan to reduce or stop clinical nephrology practice in the next 5 years, and 53% plan to fully or partially retire. Almost half the division chiefs (47%) report inadequate physician staffing. Ongoing efforts to monitor and address pediatric nephrology workforce issues are needed.

Rozon-Solomon, M. and L. Burrows "'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.

There is a serious, continuous and increasing shortfall of organs, especially kidneys, for the purpose of transplantation. This shortfall is especially remarkable in African American populations. Because the incidence of hypertension (HTN) and associated end-stage renal diseases (ESRD) is 17 times greater in African Americans, this minority group, which comprises only 12% of the U.S. population, represents 34% of the dialysis population and 30% of the national kidney waiting list. Furthermore, while black individuals comprise 22-24% of kidney recipients, they comprise only 8-11% of donors. Because of the histocompatibility differences between the races and because tissue matching is part of the United Network for Organ Sharing (UNOS) allocation formula, African Americans wait twice as long for kidneys as Caucasians. Also, because they get more poorly matched organs, their kidney transplant graft survival is 10-20% lower than that for other racial groups. The African American community is unaware of the special needs in members of their own race. Steps must be taken to increase minority awareness of the need for well-matched transplant organs and their involvement in the donation process.

Salter, M. L., K. Kumar, et al. "Perceptions about hemodialysis and transplantation among African American adults with end-stage renal disease: inferences from focus groups." BMC Nephrol. 2015 Apr 9;16:49. doi: 10.1186/s12882-015-0045-1.

BACKGROUND: Disparities in access to kidney transplantation (KT) remain inadequately understood and addressed. Detailed descriptions of patient attitudes may provide insight into mechanisms of disparity. The aims of this study were to explore perceptions of dialysis and KT among African American adults undergoing hemodialysis, with particular attention to age- and sex-specific concerns. METHODS: Qualitative data on experiences with hemodialysis and views about KT were collected through four age- and sex-stratified (males <65, males >/=65, females <65, and females >/=65 years) focus group discussions with 36 African American adults recruited from seven urban dialysis centers in Baltimore, Maryland. RESULTS: Four themes emerged from thematic content analysis: 1) current health and perceptions of dialysis, 2) support while undergoing dialysis, 3) interactions with medical professionals, and 4) concerns about KT. Females and older males tended to be more positive about dialysis experiences. Younger males expressed a lack of support from friends and family. All participants shared feelings of being treated poorly by medical professionals and lacking information about renal disease and treatment options. Common concerns about pursuing KT were increased medication burden, fear of surgery, fear of organ rejection, and older age (among older participants). CONCLUSIONS: These perceptions may contribute to disparities in access to KT, motivating granular studies based on the themes identified.

Sika, M., J. Lewis, et al. "Baseline characteristics of participants in the African American Study of Kidney Disease and Hypertension (AASK) Clinical Trial and Cohort Study." Am J Kidney Dis. 2007 Jul;50(1):78-89, 89.e1.

BACKGROUND: African Americans are at increased risk of kidney failure caused by hypertension. The primary objective of the African American Study of Kidney Disease and Hypertension (AASK) Cohort Study is to identify risk factors for progressive kidney disease in African Americans with hypertensive chronic kidney disease in the setting of recommended antihypertensive therapy. STUDY DESIGN, SETTING, & PARTICIPANTS: On completion of the AASK Trial, a randomized, double-blind, 3 x 2 factorial trial, participants who had not yet begun dialysis treatment or undergone kidney transplantation were invited to enroll in a prospective Cohort Study. Cohort Study participants received recommended antihypertensive drug therapy, including high rates of angiotensin-converting enzyme-inhibitor (73%) and angiotensin receptor blocker (10%) use with a blood pressure goal of less than 130/80 mm Hg. PREDICTOR, OUTCOMES, & MEASUREMENTS: Baseline clinical and demographic characteristics are described separately at the baseline of the AASK Trial and Cohort Study. RESULTS: Of 1,094 persons enrolled in the AASK Trial (June 1995 to September 2001; mean age, 55 years; 61% men), 691 enrolled in the AASK Cohort Study (April 2002 to present), 299 died or reached dialysis therapy or transplantation, and 104 declined to participate in the AASK Cohort Study. Mean baseline systolic/diastolic blood pressures were 150/96 mm Hg in the Trial and 136/81 mm Hg in the Cohort Study. Cohort Study participants had greater serum creatinine levels at the start of the Cohort Study (2.3 versus 1.8 mg/dL [203 versus 159 micromol/L]), corresponding to an estimated glomerular filtration rate of 43.8 versus 50.3 mL/min/1.73 m2 (0.73 versus 0.84 mL/s/1.73 m2), than Trial participants and greater urine protein-creatinine ratios (0.38 versus 0.19 mg/mg, respectively). Individuals who were eligible, but declined to participate in the Cohort Study, had greater systolic blood pressure, but similar kidney function. LIMITATIONS: Some parameters, such as iothalamate glomerular filtration rate, urinary albumin level, echocardiogram, and ambulatory blood pressure, were not performed in both the Trial and the Cohort Study, limiting the ability to evaluate changes in these parameters over time. CONCLUSION: Despite well-controlled blood pressure in the AASK Trial, Cohort Study participants still had evidence of progressive chronic kidney disease. Thus, the AASK Cohort Study is well positioned to address its primary objective.

Silveira, P. V. and A. Nishioka Sde "South American rattlesnake bite in a Brazilian teaching hospital. Clinical and epidemiological study of 87 cases, with analysis of factors predictive of renal failure." Trans R Soc Trop Med Hyg. 1992 Sep-Oct;86(5):562-4.

Records of 87 victims of rattlesnake bite who were admitted to a teaching in south-eastern Brazil from 1984 to 1990 were retrospectively examined. The patients came from 27 municipalities in 3 states. Most of the bites (47%) occurred between 10.00 h and 18.00 h and in April (13%). Identification of the snake was possible in only 17% of the cases, diagnosis being made on clinical grounds in the others. The lower limbs were the most common site of bite (85%). The median time interval between bite and receiving medical help was 3 h. Fang marks were observed in 47% of the cases, neurotoxic facies in 61%, and myalgia in 29%. Dark urine was reported in 40% of the cases. Clotting time was above 15 min in 53% of the tested cases. Use of a tourniquet before admission to hospital was reported 11 times. The mean dose of specific antivenom was 190 +/- 95.69 mg. The case fatality rate was 1%; 13 cases (18%) developed renal failure, 10 of whom needed dialysis. The chi 2 test for trend showed that both increased age and increased time interval between bite and medical help significantly increased the risk of renal failure ($P < 0.02$). Myalgia and neurotoxic facies were predictive of renal failure in patients older than 40 years (Fisher's exact test, $P < 0.002$ and $P < 0.02$, respectively). There was no significant association between dark urine or prolonged clotting time and renal failure.

Sola, L., R. Plata-Cornejo, et al. "Latin American special project: kidney health cooperation project between Uruguay and Bolivia." Clin Nephrol. 2015;83(7 Suppl 1):21-3.

Uruguay and Bolivia are two countries that show heterogenicity of the Latin American region, including the national income, the expenditure on health and the services for renal care. In Bolivia, there is manpower shortage for renal care with only 5 nephrologists per million people (pmp) and the prevalence of patients on dialysis is only 200 pmp. This is much lower than the mean prevalence rate of renal replacement therapy for Latin America as a whole. Uruguay on the other hand has more dedicated renal resources with 50 nephrologists pmp, and renal replacement therapy is provided to ~ 1,000 dialysis patients pmp. In November 2012, a collaborative project financed by the Uruguayan International Cooperation Agency was signed by both the Uruguay and Bolivia Ministries of Health, and the goal was to develop a comprehensive program for the prevention and management of all stages of chronic kidney disease (CKD) in Bolivia. The specific objectives were to: a) promote renal healthcare in the primary healthcare setting, b) identify kidney disease in populations at risk, and c) optimize patient care at all stages of CKD, including dialysis and transplantation supported with a national ESRD registry in Bolivia. As a first step, delegates from the Bolivian Health Ministry, visited Uruguay in April 2014, primarily to strengthen the development of tools required for developing and maintaining a national registry. In addition, during this visit, a meeting with the president of the Latin American Society of Nephrology and Hypertension (SLANH) culminated in designing a training program for peritoneal dialysis. This highly cooperative relationship is advancing the prevention and care of CKD in Bolivia and may serve as a model for international approaches to advance system level CKD care in countries with limited healthcare resources.

Sugarman, J. R. and L. Lawson "The effect of racial misclassification on estimates of end-stage renal disease among American Indians and Alaska Natives in the Pacific Northwest, 1988 through 1990." Am J Kidney Dis. 1993 Apr;21(4):383-6.

Although several recent studies have documented a high incidence of end-stage renal disease (ESRD) among American Indians (AI) and Alaska Natives (AN), racial misclassification of AI/AN as members of other races on disease registries has not been accounted for. We conducted a study to link the Northwest Renal Network (NRN) ESRD database, which includes persons known to have begun dialysis in Idaho, Oregon, and Washington, and the Indian Health Service (IHS) patient registration file, which includes AI/AN enrolled for health care provided or paid for by IHS in the same states, for the period January 1, 1988 to December 31, 1990. Among the 3,356 persons included on the NRN ESRD database, 68 (2.0%) were coded as AI/AN. Of the 68 listed as AI/AN, 54 (79.4%) were identified on the IHS patient registration file. In addition to the 68 cases coded on the NRN as AI/AN, we identified 12 cases that were definitively matched to the IHS patient registration file but not coded AI/AN on the NRN. The age-adjusted annual incidence of ESRD treatment initiation among AI/AN in Idaho, Oregon, and Washington was 267.5 per million according to original racial coding on the NRN, but it increased to

311.6 per million after correction for racial misclassification. Among IHS-registered AI/AN, the annual incidence increased from 394.1 per million to 474.3 per million. Racial misclassification of AI/AN in ESRD registries may result in underestimates of AI/AN ESRD incidence for the United States.

Sule, S., B. Fivush, et al. "Increased risk of death in African American patients with end-stage renal disease secondary to lupus." Clin Kidney J. 2014 Feb;7(1):40-4. doi: 10.1093/ckj/sft157. Epub 2014 Jan 2.

BACKGROUND: Systemic lupus erythematosus (SLE) is a devastating systemic disease that can lead to end-stage renal disease (ESRD). Our goal was to assess the relative mortality risk associated with race in pediatric and adult populations with ESRD secondary to SLE maintained on hemodialysis (HD). METHODS: We identified an inception cohort of patients who were started on HD in January 1990 from data collected by the United States Renal Data System (USRDS). Kaplan-Meier survival analyses were performed in these patients using the time at risk from 1 January 1990 through 31 December 2010, the last date of the USRDS data collection period in this dataset. Cox proportional hazard models were used to assess mortality, adjusted for age at dialysis initiation. Subjects were censored at transplantation or end of follow-up. RESULTS: There were 1580 patients with ESRD secondary to SLE, 252 pediatric patients (62% African American) and 1328 adults (56% African American). African American pediatric patients with ESRD secondary to SLE had a 2-fold increased risk of death compared with African American children with other causes of ESRD [hazard ratio (HR): 2.1, 95% confidence interval (CI): 1.4-2.9, $P < 0.01$]. Increased risk of death was also seen in African American adults with ESRD secondary to SLE compared with both Caucasians with ESRD secondary to SLE (HR: 2.3, 95% CI: 1.2-4.2, $P < 0.01$) and African American adults with ESRD secondary to other diseases (HR: 1.2, 95% CI: 1.1-1.4, $P < 0.01$). CONCLUSION: Our study suggests that there is a significant increased risk for mortality in African American children and adults with ESRD secondary to SLE. This suggests that African Americans with ESRD secondary to SLE need aggressive monitoring.

Tejani, A. and D. H. Stablein "Recurrence of focal segmental glomerulosclerosis posttransplantation: a special report of the North American Pediatric Renal Transplant Cooperative Study." J Am Soc Nephrol. 1992 Jun;2(12 Suppl):S258-63.

Among various forms of glomerulonephritis, focal segmental glomerulosclerosis (FSGS) is the most common cause of end-stage renal disease leading to transplantation in children. Previous reports of the recurrence of FSGS vary widely. The North American Pediatric Renal Transplant Cooperative Study carried out a special study to determine the rate of recurrence and risk factors leading to recurrence in 132 transplants. Fifty-five percent of the patients were white children, and the remaining were black and Hispanic children. Fifty percent of the patients were under 5 yr of age at the time of the diagnosis of FSGS. Twenty-seven (20.5%) of 132 patients (95% confidence interval, 14 to 27) had a biopsy-proven recurrence of FSGS. The median time to recurrence was 14 days. The recurrence rate was similar in white children (23%) when compared with that in Hispanic children (20%) but was lower than that in black children (9%) (3 of 32 children).2+ (20%). The mean serum albumin level of patients with recurrence was 1.7 versus 2.0 g/dL for those without recurrence. The mean serum cholesterol level of patients with recurrence was 525 versus 476 mg/dL for those without recurrence. The duration of dialysis was similar in the two groups. The mean time from diagnosis to end-stage renal disease status was 33 months for patients with recurrence and 52 months for those without recurrence (P less than 0.05).(ABSTRACT TRUNCATED AT 250 WORDS)

Thomas, C. J. and T. A. Washington "Religiosity and social support: implications for the health-related quality of life of African American hemodialysis patients." J Relig Health. 2012 Dec;51(4):1375-85. doi: 10.1007/s10943-011-9483-7.

The purpose of this study was to determine whether sociocultural differences have any effect on the health-related quality of life among African American hemodialysis patients. This study examined relationships between religiosity, social support, and the health-related quality of life of African American hemodialysis patients. Four hemodialysis units were selected for the study. The study population consisted of 176 African American hemodialysis patients who had been receiving hemodialysis treatments for at least 1 month. The religiosity variable was measured by the Measure of Religious Involvement. Social Support was measured by the Medical Outcomes Study Social Support Survey, and health-related quality of life was measured by the Medical Outcomes Study 36 Short Form Health Survey (SF-36v2). The investigators found that social support contributed to the emotional and physical health of African American hemodialysis patients in the sample, whereas religiosity was inversely related to the physical health of these patients.

Tijerina, M. S. "Mexican American women's adherence to hemodialysis treatment: a social constructivist perspective." Soc Work. 2009 Jul;54(3):232-42.

Mexican Americans have as much as a six-times greater risk of end-stage renal disease (ESRD) than non-Hispanic white Americans, and women show a faster rate of decline in diabetic renal functioning. The leading treatment for ESRD is hemodialysis, an intensive, complex treatment regimen associated with high levels of patient nonadherence. Previous studies of patient adherence have adopted a biomedical, practitioner-oriented approach focused on performance of fixed behaviors and ignoring contextual and motivational factors. The author describes a social constructivist approach to understanding how female Mexican American dialysis patients experience their disease, the treatment regimen, and the consequences of that experience. Mexican American women's perceptions and psychosocial factors were examined to understand what these women viewed as important to their realities as dialysis patients. Poverty, longer treatment history, and immigrant status emerged as factors that appeared to influence treatment nonadherence. Perceived identity losses, heightened awareness of mortality and family dysfunction emerged as themes that participants viewed as preeminent in their day-to-day lives. A social constructivist perspective is highly compatible with social work principles of person-in-environment and starting where the client is. This perspective provides a valuable framework for informing social work practice with this special population of Mexican American dialysis patients.

Vats, A. N., L. Donaldson, et al. "Pretransplant dialysis status and outcome of renal transplantation in North American children: a NAPRTCS Study. North American Pediatric Renal Transplant Cooperative Study." Transplantation. 2000 Apr 15;69(7):1414-9.

BACKGROUND: There are no large studies of the effect of pretransplant dialysis status on the outcome of renal transplantation (Tx) in children. This study evaluated the North American Pediatric Renal Transplant Cooperative Study (NAPRTCS) registry data for the outcome of Tx in pediatric patients who either (1) received their transplants preemptively or (2) were maintained on dialysis before receiving their transplants. METHODS: We compared graft survival and patient survival rates, incidence of acute tubular necrosis (ATN), acute rejection episodes, and causes of graft failure in peritoneal dialysis (PD) patients with those maintained on hemodialysis (HD) and those undergoing preemptive Tx (PTx). RESULTS: Primary Tx was performed in 2495 children (59% male; 61% Caucasian; 1090 PD, 780 HD, 625 PTx) between 1/1/1992 and 12/31/1996. The overall graft survival rates of the PD and HD groups were similar, but were less than that of the PTx group (3-year: 82% PD and HD, 89% PTx, overall P = 0.0003). Improved graft survival in the PTx group was present only in recipients of grafts from living donors. There was no difference in the overall patient survival rate at 3 years, or in time to first acute-rejection episodes in the three groups. The incidence of ATN in the first 7 days post-Tx was higher in PD and HD patients than in PTx patients (11% PD and 12% HD vs. 2% PTx, P<0.001; HD vs. PD, P = NS). The major single cause of graft failure in each group was: PD, vascular thrombosis (200%); HD, chronic rejection (27%); PTx, acute and chronic rejection (21% each). CONCLUSION: NAPRTCS data show that graft survival is improved in patients receiving PTx, compared with those receiving PD and HD. Graft loss resulting from vascular thrombosis is more common in children who receive PD than in those receiving HD.

Warady, B. A. and E. K. Sullivan "Renal transplantation in children with sickle cell disease: a report of the North American Pediatric Renal Transplant Cooperative Study (NAPRTCS)." Pediatr Transplant. 1998 May;2(2):130-3.

Sickle cell disease is a rare cause of end-stage renal disease (ES-RD) in pediatrics accounting for only 0.5% and 0.2% of the patients registered in the dialysis and transplant arms of the NAPRTCS database, respectively. Accordingly, the single-center experience with this disorder is extremely rare, and little information on patient and graft outcome is available. Between 1989-1995, 9 patients with sickle cell nephropathy (5 male and 4 female) received 10 transplants [7 cadaver (CAD) and 3 living-related donor (LRD)]. The mean age at the time of the first transplant was 16.0 +/- 1.6 years. Prior to transplantation, all patients received maintenance dialysis (4 HD, 4 PD, 1 HD/PD) for 21.4 +/- 16.1 months (range 3-47 months), and all had received > 5 lifetime random blood transfusions. There was a mean 15.9 consecutive days of hospitalization from transplantation to discharge. Initial immunosuppression consisted of methyl predinsolone/prednisone (9 patients) cyclosporine (7 patients) and azathioprine (8 patients). ATG/ALG or OKT3 were used in 3 CAD transplants. There have been 21 acute rejection episodes in 7 of the 9 patients. Two patients had no rejections and 2 patients had 6 rejections each. Six of the 21 rejection episodes occurred within the first 100 days post-transplant. Nine (43%) of the rejections were completely reversed, the reversal rate varying from 71% for first rejections to 29% for second and subsequent rejections. Four (40%) of the 10 grafts have failed. Graft survival at 12 and 24 months post-transplant is 0.89 +/- 0.11 and 0.71 +/- 0.18, respectively. Patient survival is 89%.

The present experience suggests that renal transplantation is a viable option for the adolescent patient with sickle cell nephropathy and ESRD.

Williams, A. W., A. C. Dwyer, et al. "Critical and honest conversations: the evidence behind the "Choosing Wisely" campaign recommendations by the American Society of Nephrology." Clin J Am Soc Nephrol. 2012 Oct;7(10):1664-72. doi: 10.2215/CJN.04970512. Epub 2012 Sep 13.

Estimates suggest that one third of United States health care spending results from overuse or misuse of tests, procedures, and therapies. The American Board of Internal Medicine Foundation, in partnership with Consumer Reports, initiated the "Choosing Wisely" campaign to identify areas in patient care and resource use most open to improvement. Nine subspecialty organizations joined the campaign; each organization identified five tests, procedures, or therapies that are overused, are misused, or could potentially lead to harm or unnecessary health care spending. Each of the American Society of Nephrology's (ASN's) 10 advisory groups submitted recommendations for inclusion. The ASN Quality and Patient Safety Task Force selected five recommendations based on relevance and importance to individuals with kidney disease.Recommendations selected were: (1) Do not perform routine cancer screening for dialysis patients with limited life expectancies without signs or symptoms; (2) do not administer erythropoiesis-stimulating agents to CKD patients with hemoglobin levels >/=10 g/dl without symptoms of anemia; (3) avoid nonsteroidal anti-inflammatory drugs in individuals with hypertension, heart failure, or CKD of all causes, including diabetes; (4) do not place peripherally inserted central catheters in stage 3-5 CKD patients without consulting nephrology; (5) do not initiate chronic dialysis without ensuring a shared decision-making process between patients, their families, and their physicians.These five recommendations and supporting evidence give providers information to facilitate prudent care decisions and empower patients to actively participate in critical, honest conversations about their care, potentially reducing unnecessary health care spending and preventing harm.

Wolfe, W. A. "Increasing African-American living kidney donors: the feasibility and potential role of nephrology nurses and social workers." Soc Work Health Care. 2003;37(4):73-89.

This article endeavors to suggest that there may be a better chance of attenuating the gap between the supply and demand of kidney organs for African-American patients, by increasing the number of living donors. Among the multiple issues focused on are the contrasting dynamics between cadaver and living kidney donations with this population. The dual importance of adequate information and providing it in a face-to-face approach with African-American family members is also discussed. The final focus is on the strategic position of nephrology nurses and social workers, in potentially helping to increase the number of African-American living kidney donors.

Wong, J. S., F. K. Port, et al. "Survival advantage in Asian American end-stage renal disease patients." Kidney Int. 1999 Jun;55(6):2515-23.

Survival advantage in Asian American end-stage renal disease patients. BACKGROUND: An earlier study documented a lower mortality risk for end-stage renal disease (ESRD) patients in Japan compared with the United States. We compared the mortality of Caucasian (white) and Asian American dialysis patients in the United States to evaluate whether Asian ancestry was associated with lower mortality in the United States. METHODS: The study sample from the U.S. Renal Data System census of ESRD patients treated in the United States included 84,192 white or Asian patients starting dialysis during May 1995 to April 1997, of whom 18,435 died by April 30, 1997. Patient characteristics were described by race. Relative mortality risks (RRs) for Asian Americans relative to whites were analyzed by Cox proportional hazards regression models adjusting for characteristics and comorbidities. Population death rates were derived from vital statistics for the United States and Japan by age and sex. RESULTS: Adjusting for demographics, diabetes, comorbidities, and nutritional factors, the RR for Asian Americans was 0.75 (P = 0.0001). Race-specific background population death rates accounted for over half of the race-related mortality difference. For whites, mortality decreased as the body mass index (BMI) increased. For Asians, the relationship between BMI and survival was u-shaped. The ratio of Asian American/white dialysis death rates and the ratio of Asian American/white general population death rates both varied by age in a similar pattern. The population death rates of Asian American and Japanese were also similar. CONCLUSION: Among dialysis patients, Asian Americans had a markedly lower adjusted RR than whites. The effect of BMI on survival differed by race. Compared with the respective general population, dialysis patients had the same relative increase in death rates for both races. The difference in death rates between the United States and Japan does not appear to be primarily treatment related, but rather is related to background death rates.

Wright Nunes, J. A., C. Y. Osborn, et al. "Health

numeracy: perspectives about using numbers in health management from African American patients receiving dialysis." Hemodial Int. 2015 Apr;19(2):287-95. doi: 10.1111/hdi.12239. Epub 2014 Oct 30.

Health numeracy is linked to important clinical outcomes. Kidney disease management relies heavily on patient numeracy skills across the continuum of kidney disease care. Little data are available eliciting stakeholder perspectives from patients receiving dialysis about the construct of health numeracy. Using focus groups, we asked patients receiving hemodialysis open-ended questions to identify facilitators and barriers to their understanding, interpretation, and application of numeric information in kidney care. Transcripts were analyzed using content analysis. Twelve patients participated with a mean (standard deviation) age of 56 (12) years. All were African American, 50% were women, and 83% had an annual income <$20,000/year. Although patients felt numbers were critical to every aspect in life, they noted several barriers to understanding, interpreting and applying quantitative information specifically to manage their health. Low patient self-efficacy related to health numeracy and limited patient-provider communication about quantitatively based feedback, were emphasized as key barriers. Through focus groups of key patient stakeholders we identified important modifiable barriers to effective kidney care. Additional research is needed to develop tools that support numeracy-sensitive education and communication interventions in dialysis.

The above contents are the collected information from Internet and public resources to offer to the people for the convenient reading and information disseminating and sharing.

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