ABSTRACT SERVICE

EPIDEMIOLOGY

High risk of IDDM in African-American and Hispanic children in Chicago, 1985-1990.

Lipton RB, Fivecoate JA, Diabetes Care. 1995; 18(4) : 476-82.

OBJECTIVE – To determine the incidence of insulin-dependent diabetes mellitus (IDDM) among African-American and Hispanic children < 18 years of age in the city of Chicago. These minority communities are large and heterogeneous with respect to socio-economic status, length of time since migration and place of origin, so that correlates of IDDM risk can be examined with precision.

RESEARCH DESIGN AND METHODS – Cases occurring during the years 1985-1990 were drawn from records at 37 hospitals in Cook's County. African-American and Hispanic patients using insulin, residing within the city limits and < 18 years old at onset were included. Three secondary sources of cases were used; medical records of clinics associated with the Chicago Department of Health, a survey of unaffiliated neighborhood clinics and lists of children attending diabetes camps. Overall ascertainment was estimated at 86%.

RESULTS – There were 413 new cases during this 6-year interval. The average incidence of IDDM was 12.0/100,000 annually among African-American males, 12.1 among African-American females, 9.1 among Hispanic males, and 10.2 among Hispanic females. Mean age at onset was 11.1, 11.0, 10.7 and 10.1 years for African-American males, African-American females, Hispanic males and Hispanic females, respectively. Fewer cases occurred during the summer months. Diabetes among the first-degree relatives of children from both ethnic groups was commonly noted on the medical charts.

CONCLUSIONS – The incidence rates in Chicago fell near the upper limits of reports for both African-origin and Hispanic populations worldwide. The relatively early age at onset may point to an environmental factor associated with this high incidence of the disease. Further studies will provide valuable data on co morbid conditions, unusual diabetic syndromes and family dynamics in childhood chronic disease.

ETIOPATHOLOGY

A study of thyroid function and prevalence of thyroid auto antibodies in an African diabetic population.

Cardoso C, Ohwovoriole AE, Kuku SF. J Diabetes Complications 1995; 9(1) : 37-41.

It is generally believed that autoimmune disorders are uncommon in Africans. Some workers have argued that insulin-dependent diabetes mellitus (IDDM) is rare in Africa on account of this reduced proneness to autoimmunity. However, it is undetermined whether or not Africans with IDDM have increased prevalence of thyroid dysfunction and autoimmunity, two phenomena strongly associated with Caucasian IDD's. We determined thyroid function and the prevalence of thyroid autoimmunity in IDDM Africans. The results are compared with those of a nondiabetic group and a group with non-insulin-dependent diabetes mellitus (NIDDM). Thyroid hormone levels were significantly lower in IDDM patients than in the control population and the NIDDM population. Sub clinical hypothyroidism was present in 21% of the 28 IDDM patients. One patient was hypothyroid and another hyperthyroid. Of the 60 NIDDM patients, 5 (8.3%) had sub clinical hypothyroidism. Forty-six percent of the IDDM patients had significant levels of serum thyroid auto antibodies (TAAB). This was significantly higher than the 1.4% and 1.7%, respectively, in the controls and NIDDMs. Presence of TAAB in the patients was strongly associated with thyroid dysfunction, female preponderance and duration of diabetes mellitus. Thyroid dysfunction and autoimmunity are common in Nigerians clinically diagnosed as IDDM and have prevalence rates comparable to other populations but higher rates were previously reported from some other African groups. The increased prevalence of thyroid autoimmunity in IDDM supports the view that these patients are true IDDMs rather than variants of NIDDM or malnutrition-related diabetes mellitus (MRDM) as has been suggested by some workers.

Genes within the major histocompatibility complex predict NIDDM in African-American women in Alabama.

Acton RT, Roseman JM, Bell DS, Goldenberg RL, Tseng ML, Vanichanan C, Harman LA, Go RC. Diabetes Care 1994; 17(12) : 1491-4.

OBJECTIVE – To test the hypothesis that genes within the major histocompatibility complex (MHC) are associated with gestational diabetes mellitus (GDM) and subsequently, non-insulin-dependent diabetes mellitus (NIDDM) in African-American women.

RESEARCH DESIGN AND METHODS – African-American women with GDM were compared with pregnant African-American control subjects. Following pregnancy, GDM patients were assessed at various intervals of time (median = 6 years) to determine whether they had developed diabetes.

RESULTS – GDM patients who required insulin during pregnancy possessed a significantly higher frequency of A33, DR2, DR9 and BF-S phenotypes than control subjects. GDM patients who subsequently developed NIDDM had a significantly higher frequency of B41, DR2 and BG-S and a lower frequency of DR1 and DR6 phenotype than control subjects. Even after controlling for age and body mass index, B41 and DR2 were independent predictors of developing insulin-requiring GDM and NIDDM in GDM subjects.

CONCLUSIONS – These results suggest that either one or more genes within the MHC are involved in the etiology of NIDDM.

Variability of the pancreatic islet beta cell/liver glucose transporter gene (GULT 2) in NIDDM patients.

Tanizawa Y, Riggs AC, Chiu KC, Janssen RC, Bell DS, Go RP, Roseman JM, Acton RT, Permutt MA. Diabetologia 1994; 37(4) : 420-7.

The purpose of these experiments were to test the hypothesis that impaired glucose-stimulated insulin secretion in NIDDM is due to mutations in the islet beta cell/liver glucose transporter (GLUT 2) gene. Using oligonucleotide primers flanking each of the 11 exons, the structural portion of the gene was studied by PCR-SSCP analysis. DNA from African-American females (n = 48), who had gestational diabetes but developed overt NIDDM after delivery, were studied. Each SSCP variant was sequenced directly from genomic DNA. Two Amino acid substitutions from the previously reported sequence were found, one in the exon 3 and the other in exon 4B. Four additional silent mutations in the coding region and six intron mutations outside the splice junction consensus

sequences, were also identified. The mutation GTC x ATC in exon 4B substituted Va1197 to lle197. This amino acid substitution was found in only one NIDDM patient in a single allele and was not found in 52 control subjects. This residue exists in the fifth membrane spanning domain and Val at this position is conserved in mouse and rat GLUT 2 and human GLUT 1 to GLUT 4. The other codon change in exon 3, ACT x ATT, substituted Thr110 to lle110 in the second membrane spanning domain. To determine the frequency of this non-conservative amino acid substitution, a PCR-LCR assay was developed. This assay was simple and highly specific for detection of this single nucleotide substitution. The allelic frequency of the ATT (lle110) in NIDDM patients (39.6%, n = 48) and that in controls (47.1% n = 52) did not differ (P = 0.32, Fisher's exact test).

South African Indians show a high prevalence on NIDDM and bimodality in plasma glucose distribution patterns.
Omar MAK, Seedat MA, Dyer RB, Motala AA, Knight LT, Becker PJ. Diabetes Care. 1994; 17(1) : 70-3.

OBJECTIVE – To determine the prevalence of diabetes mellitus and impaired glucose tolerance (IGT) and to test for bimodality in plasma glucose distribution in South African Indians.
RESEARCH DESIGN AND METHODS – Subjects were selected by systematic cluster sampling various area of Durban. They underwent a modified glucose tolerance test whereby fasting and 2-hr post glucose (75 g) plasma glucose levels were measured. The program MIX was used to test for bimodality in plasma glucose distribution.
RESULTS – We tested 2,479 subjects (1,441 women and 1,038 men). Based on the revised World Health Organisation criteria, the crude prevalence of diabetes mellitus was 9.8% and the crude prevalence of Impaired Glucose Tolerance (IGT) was 5.8%; the age-and sex-adjusted prevalence was 13.0 and 6.9, respectively. IGT was significantly more common in men (7.6%) than in women (4.4%). Obesity was a feature of both diabetes mellitus and IGT, particularly in women. Both fasting and 2-hr plasma glucose values did not conform to a single normal distribution pattern in any age-group, whereas unequivocal evidence of bimodality was seen in the 55- to 74-year age-group of both sexes for fasting and 2-hr glucose and also in the 2-hr levels of men in the 25- to 34-year age-group.
CONCLUSIONS – This study highlighted a high prevalence of non-insulin-dependent diabetes mellitus in South African Indians and bimodality in the plasma glucose distribution.

TREATMENT (GENERAL)

The efficacy of traditional medicine in the management of diabetes mellitus in southwestern Nigeria.
Famuyiwa OO. Afr J Med Sci. 1993; 22(1) : 31-7.

A survey of traditional healers in lbadan, Nigeria, demonstrated that fewer than 10% of them were involved in the treatment of patients with diabetes mellitus and the total number of such patients under their care was less than 100, compared to those receiving western-type of medical treatment (up to 1000 at the University College Hospital, lbadan, alone). An interview of 20 native practitioners revealed that they had little understanding of the nature of diabetes mellitus. Their diagnosis of diabetes was based largely on intution and the disease was often confused with other medical problems like urinary tract infection or venereal disease. In a parallel study, 10 diabetic patients being treated exclusively by traditional healers were followed up on an ambulatory basis for periods of up to 16 weeks and another group of 8 patients had a hospital-based trial of traditional anti-diabetic medicines for about 4 weeks. Most of the patients reported improvement in their symptoms with less polyuria and improved sense of well-being. However, no objective improvement in the blood glucose was demonstrated. For the hospitalized group, n = 8, pre and post-treatment blood glucose respectively were, mean (+ SD), 13.9 (3.5) mmols/L and 14.9 (4.3) mmols/L, P < 0.50. It is concluded that the effectiveness of traditional antidiabetic drugs in lowering blood glucose still remains to be demonstrated. Any claims of "cure" of diabetes using native medicines can be firmly rejected. However, further studies into the potential usefulness of native herbs in the treatment of diabetes must be pursued.

Self-efficacy and confidence in outcomes as determinants of self-care practices in inner-city, African-American women with non-insulin-dependent diabetes.
Skelly AH, Marshall JR, Haughey BP, Davis PJ, Dunford RG. Diabetes Educ 1995; 21(1) : 38-46.

The purpose of this study was to examine the extent to which perceived self-efficacy and confidence in outcomes, selected demographic variables and disease characteristics (age, duration of diabetes, presence of documented complications) affects an individual's adherence over time to a diabetes regimen of home glucose testing, medication / insulin administration, diet and exercise. A convenience sample of 118 inner-city, African-American women with non-insulin-dependent diabetes mellitus receiving outpatient care at a large urban hospital were asked to complete measures of each of the psychosocial variables on two occasions, separated by an interval of 4 to 5 months and coinciding with their next scheduled clinic visit. Bivariate and multivariate analysis at Times 1 and 2 demonstrated the ability of self-efficacy alone to explain diet, exercise and home-testing behaviors while suggesting variability within individuals in sense of self-efficacy over time.

TREATMENT (INSULIN)

Diabetes in urban African-Americans. Cessation of insulin therapy is the major precipitating cause of diabetic ketoacidosis.
Musey VC, Lee JK, Crawford R, Klatka MA, McAdams D, Phillips LS. Diabetes Care 1995; 18(4): 483-9.

OBJECTIVE – To identify the causes of diabetic ketoacidosis (DKA) in a large urban hospital.
RESEARCH DESIGN AND METHOD – Consecutive patients admitted during a 3-month period with a primary diagnosis of DKA and who had moderate to servere illness as shown by serum glucose > 13.9 mmol/L (>250 mg/dl), bicarbonate < 15 mmol/L and pH < 7.35 were studied. Diabetes nurse educators interviewed patients and reviewed their medical records for the following; precipitating causes of DKA, content of previous diabetes education, frequency of blood glucose monitoring, recognition of symptoms of metabolic decompensation and types of medical assistance obtained once patients were ill.
RESULTS – There were 56 episodes of DKA and 75% of the episodes were in patients with known diabetes. In the known diabetic patients, the most common cause of DKA was stopping insulin therapy, which occurred in 67% of the

episodes. Half of the patients (50%) stopped insulin because of reported lack of money to buy insulin from an outside pharmacy or get transportation to the hospital, 21% stopped insulin because of lack of appetite, 14% stopped insulin because of behavioral or psychological reasons and 14% did so because they did not know how to manage diabetes on sick days. Of the known diabetic patients, > 80% recalled having been instructed as to blood glucose testing and acute and chronic complications, but fewer patients recalled having been instructed as to insulin does adjustment (28%) or sick day management (35%). Symptoms of decompensated diabetes were recognized in 55% of the 42 episodes of DKA in patients with known diabetes. However, only 5% of patients contacted the Diabetes Unit when they became ill, the majority (95%) went directly to the emergency room.
CONCLUSIONS – DKA occurred most often in patients with known diabetes who stopped insulin therapy because of reported lack of money for purchasing insulin or for transportation to the hospital and limited self-care skills in diabetes management. In urban African-American populations, upto two-thirds of the episodes of DKA may be preventable by improving patient education and access to care.

COMPLICATIONS

Outcomes in African-American women with suspected acute myocardial infarction: the Myocardial Infarction Triage and intervention Project.

Maynard C, Every NR, Litwin PE, Martin JS, Weaver WD. J Natl Med Assoc 1995; 87(5) : 339-44.

Increasing attention has been given to the investigation of cardiovascular disease in women, although African-American women have received little attention. This study compares characteristics and outcomes in women admitted to coronary care units for suspected acute myocardial infarction (MI). Between January 1988 and December 1991, a total of 554 (5%) African-American and 9738 (95%) White women with suspected acute MI were admitted to coronary care units in metropolitan Seattle, Washington. Relevant demographic socioeconomic, clinical and outcome data were abstracted from the medical record and entered in the Myocardial Infarction Triage and Intervention registry. African-American women were younger, more often single and unemployed, and were less likely to have health insurance than their White counterparts. In addition, a higher proportion of African-American women reported a history of hypertension and diabetes mellitus. After adjustment for age, African-American women were equally as likely to develop acute MI and were more likely to die in the hospital. In addition, a higher proportion of African-American women were readmitted to coronary care units for suspected MI compared with their White counterparts, African-American women with suspected acute and MI were considerably worse off from both socioeconomic and clinical standpoints, and their relative disadvantage was apparent in poor outcomes.

Health care utilization patterns of hypertensive and diabetic African American elderly.

Butler FR, Secundy MG, Romberg EE. J Cult Divers 1994; 1(4) : 74-8.

An interdisciplinary team of researchers conducted a pilot study of the African American elderly in a major urban setting to determine factors influencing health care utilization patterns of patients with hypertension or diabetes. The data collected included household composition, family and social networks, histories of depression, self-esteem, health locus of control, activities of daily living (ADL) and health care utilization. Final analysis revealed significant correlation between ADL, self-esteem, depression, locus of control, social support systems and health care utilization patterns. Economic factors were significantly correlated with ADL especially regarding poverty as the critical variable in the well-being of elderly African Americans. The data revealed significant indicators for future study relative to assisting the elderly in maintaining their independence. There is also a need for controlled longitudinal studies on the impact of economic status on the overall health of aging minorities.

Familial predisposition to nephropathy in African-Americans with non-insulin-dependent diabetes mellitus.

Freedman Bl, Tuttle AB, Spray BJ. Am J Kidney Dis 1998; 25(5) : 710-3.

Nephropathy clusters in Pima Indian families with non-insulin-dependent diabetes mellitus (NIDDM), suggesting that susceptibility to nephropathy is distinct from NIDDM per se. The authors compared the family history of end-stage renal disease (ESRD) from 52 African-American patients with NIDDM-induced ESRD (cases) with 45 age, sex and race-matched non-insulin-dependent diabetics without nephropathy (controls) to assess whether the risk of renal disease was independent from NIDDM in African-Americans as well. Thirty-seven percent (19 of 52) of NIDDM-induced ESRD patients had either a first, second, or third degree relative with ESRD, in contrast to only 7% (3 of 45) of diabetic controls. African-American individuals with NIDDM were at eightfold increased risk for developing subsequent ESRD in the presence of a close relative with ESRD (odds ratio = 8.06, 95% confidence interval, 2.2 to 29.6; P < or = 0.0005). No significant differences were observed in yearly income, years of formal education, total serum cholesterol level, prevalence of smoking, or hypertension between the groups. Diabetic control (assessed by glycosylated hemoglobin and random glucose levels) was sub-optimal in non-renal disease controls, suggesting that hyperglycemia alone fails to cause nephropathy in patients with NIDDM. Family size was unlikely to have influenced the results because diabetic cases had significantly fewer first-degree relatives than did diabetic controls. Familial clustering of ESRD is present in certain African-American families with NIDDM. Differences in family size and degree of diabetic control are unlikely to account for the differences observed between families.

African-American and White patients admitted to the intensive care unit: is there a difference in therapy and outcome?

Williams JF, Zimmerman JE, Wagner DP, Hawkins M, Knaus WA. Crit Care Med 1995; 23(4) : 626-36.

OBJECTIVE : To evaluate variations in patient characteristics, hospital mortality, intensive care unit (ICU) length of stay and treatment among African-Americans and White patients admitted to the ICU.
DESIGN: Prospective, inception cohort study.
SETTING: Forty-two ICUs at 40 U. S. hospitals, including 26 hospitals that were randomly selected and 14 volunteer institutions, primarily large universities or tertiary care centers.

PATIENTS: A consecutive sample of 17,440 ICU admissions. **MEASUREMENTS AND MAIN RESULTS:** Selected demographic, physiologic and treatment information for an average of 415 admissions at each ICU and pay or information at 36 of 40 hospitals. Outcomes were compared using the ratio of observed to risk-adjusted predicted hospital mortality rate, ICU length of stay and resources used during ICU day 1 and the first seven ICU days. Compared with 14,006 White patients admitted to the ICU, 2,450 African-American patient admissions were significantly ($p < .0001$) younger, had a higher mean severity of disease and a greater proportion of non-operative and emergency department admissions. African-Americans had fewer life-threatening Acute Physiology and Chronic Health Evaluation III (APACHE III) co morbidities, but a higher prevalence of severe compromise in activities of daily living, diabetes mellitus, chronic renal disease and intravenous drug abuse. There was no significant racial difference in risk-adjusted hospital mortality rate. For African-Americans, adjusted ICU length of stay was significantly ($p < .0003$) shorter and the first 7 days of resource use was significantly ($p < .0004$) lower, but the differences were small (3% to 4%).
CONCLUSIONS: After adjusting for variations in patient characteristics at ICU admission, race had no significant effect on hospital survival. The small but statistically significant differences in adjusted ICU length of stay and resource use could indicate under-treatment for African-Americans or, over-treatment for Whites.

Diabetic retinopathy: preventive care assurance for high-risk diabetics.
Padonu GB. ABNF J. 1994; 5(3) : 86-9.

African-Americans have a prevalence of diabetes mellitus nearly twice that of Whites and are at greater risk of long term complication of diabetes such as diabetic retinopathy, a leading cause of visual loss and impairment among diabetics. The nurse in primary health care systems must play a more fundamental and aggressive role in assuming the consistent incorporation of preventive care and services for diabetics at high risk of diabetic retinopathy. Strategies for improving preventive care assurance are suggested to aid the nurse in identifying high-risk diabetics, facilitating secondary prevention as recommended by the American Diabetes Association (ADA) and monitoring of preventive care outcomes and status.

Familial aggregation of cardiovascular diseases in African-American pedigrees.
Rotimi C, Cooper R, Cao G, Sundarum C, McGee D. Genet Epidemiol 1994; 11(5) : 397-407.
Familial aggregation of cardiovascular diseases and diabetes has been consistently demonstrated. However, virtually all of the evidence on the familial patterns of these disease has come from White population samples. This study evaluates the level of familial excess risk among first degree relatives of 232 African-American pedigrees which included 1,420 individuals recruited from the Chicago, IL, area. Excess disease risk was observed among relatives (parents and off-springs) of affected probands compared to relatives of unaffected probands for coronary heart disease (odds ratio [OR] = 5.30; 95% confidence interval [Cl] = 2.51 – 11.23); hypertension (OR = 1.98; Cl = 1.41 – 2.80); stroke (OR = 3.24; Cl = 1.08-9.70); and diabetes (OR = 2.95; Cl = 1.55-5.62). The results of this study clearly show that coronary heart disease, hypertension, stroke, and diabetes aggregate in some African-American families and not others. Unaffected relatives of persons suffering from these diseases should be encouraged to have their blood pressure, lipid and blood glucose levels measured at frequent intervals. These recommendations are particularly urgent in African-American communities because of the disproportionately high morbidity and mortality experienced from cardiovascular diseases and diabetes.

Retinopathy in African Americans and Whites with insulin-dependent diabetes mellitus.
Arfken CL, Salicrup AE, Meuer SM, Del Priore LV, Klein R, McGill JB, Rucker CS, White NH, Santiago JV. Arch Intern Med 1994; 154(22) : 2597-602.

BACKGROUND – The development and progression of diabetic retinopathy in African Americans with insulin-dependent diabetes mellitus is not known.
METHODS – Two hundred subjects with insulin-dependent diabetes mellitus with duration of diabetes 16 years or less at first visit were studied; 58 were African Americans and 142 were Whites. All had gradable stereoscopic colour funds photographs (seven standard fields) from at least two visits (mean time between first and second visit was 4.1 years). Subjects with haemoglobinopathy or proliferative retinopathy or subjects who had evidence of treatment for proliferative retinopathy at first visit were excluded. Masked grading of photographs was conducted using the modified Airlie House classification scheme.
RESULTS: African Americans were older, heavier, had higher systolic blood pressure (all $P < .05$), and marginally higher hemoglobin A1 (HbA1) values ($P = .06$) than Whites at first visit. African-Americans had a lower rate of two steps or more progression from pre-existent retinopathy (19%) than Whites (43%). Progression to proliferative retinopathy or treatment was similar by race. Multivariate analysis predicting development or progression of retinopathy, while controlling for length of follow-up, found higher HbA1 (odds ratio [OR] = 2.15), longer duration of insulin-dependent diabetes mellitus (OR = 1.69), higher serum creatinine concentration (OR = 1.59), and White race (OR = 2.62) to be independent risk factors.
CONCLUSION: This data suggest a previously unsuspected reduction in the adjusted risk for development and progression of retinopathy in African Americans. The reasons for this apparently reduced risk are not known.

The African Caribbean Eye Survey: risk factors for glaucoma in a sample of African Caribbean people living in London.
Wormald RP, Basauri E, Wright LA, Evans JR. Eye 1994; 8 : 315-20.

The purpose of the study was to estimate the prevalence of and risk factors for chronic glaucoma in a sample of African Carribbean people over 35 years of age living in the London Borough of Haringey. A cross-sectional voluntary sample of persons were subjected to detailed ophthalmic assessment including automated tangent screen suprathreshold visual field testing, application tonometry and stereoscopic disc evaluation in 50 community-based survey clinics over an 8 month period. Cases and suspects were referred to Moorfields Eye Hospital for more detailed assessment and confirmation of the diagnosis. Of 873 eligible persons examined (out of a total

1022), 32 definite cases of glaucoma were identified, a prevalence of 3.9%, 42% of these had been previously diagnosed. Approximately 10% of the sample required further assessment and follow-up when ocular hypertensives and glaucoma suspects were included. An age-standardised comparison with the findings of the Roscommon survey revealed a relative risk for glaucoma for Haringey Blacks compared with Irish Whites of 3.7. Significant risk factors for glaucoma included age, African birthplace and darker skin colour. Neither diabetes nor hypertension reached significance. Despite the lack of a population base, this study provides strong evidence that the fourfold greater risk of glaucoma estimated for American Blacks compared with Whites applies equally to the United Kingdom population. Community-based facilities are required to raise awareness of the risk among this ethnic minority in this country and case-finding resources should be provided to meet local needs.

Pattern of blood pressure in African diabetics : report from Sudan.

Ahmed M el B, Elmahadi EM. J Hum Hypertens. 1995; 9(11) : 899-901.

The objective of this study was to determine the prevalence of hypertension in diabetic patients in an urban Sudanese population compared with a non-diabetic group. It was found that there was a higher prevalence of diastolic hypertension (44%) in the non-insulin-dependent (NIDDM) patients. The blood pressures did not correlate with age, duration of diabetes or nephropathy (9% of cases), but obesity which was detected in 34% of the NIDDM group may possibly explain the high prevalence of hypertension.

NIDDM is the major cause of diabetic end-stage renal disease. More evidence from a tri-ethnic community.

Pugh JA, Medina RA, Cornell JC, Basu S. Diabetes. 1995; 44(12) : 1375-80.

Diabetes is the single largest cause of end-stage renal disease (ESRD) in adults in the U. S. Insulin-dependent diabetes mellitus (IDDM) has been recognized for some time as an important cause of ESRD, but non-insulin-dependent diabetes mellitus (NIDDM) has been assumed, until recently, to rarely cause ESRD. The objective of this study is to determine the incidence of treatment of diabetic ESRD by diabetic type for three ethnic/racial groups; non-Hispanic Whites, African-Americans and Mexican-Americans. A population-based incidence cohort was assembled from all dialysis centers in Bexar (San Antonio) and Dallas counties in Texas. All patients with diabetic ESRD beginning dialysis between 1 December 1987 (Bexar) or 1 December 1988 (Dallas) and 31 July 1991 were identified. All non-Hispanic Whites and African-Americans and a ½ random sample of Mexican-Americans were approached for enrollment. Individuals were confirmed to have diabetes using the World Health Organisation criteria. Diabetes typing was done using a computerized historical algorithm. Age-specific and age-adjusted incidence rates were obtained by diabetic type and ethnic/racial group. NIDDM causes the majority of diabetic ESRD; 59.5% for non-Hispanic Whites, 92.8% for Mexican-Americans and 84.3% for African-Americans. Mexican-Americans and African-Americans, respectively, have 6.1 and 6.5 times higher incidence of treatment for diabetic ESRD than non-Hispanic Whites. NIDDM results in more ESRD than does IDDM. Minorities (African-Americans and Mexican-Americans) are at increased risk and programs and aimed at prevention of NIDDM-related ESRD must focus on them.

Post-transplant diabetes mellitus and methylprednisolone pharmacokinetics in African-American and Caucasian renal transplant recipients.

Tornatore KM, Biocevich DM, Reed KA, Tousley K, Gray V, Singh JP, Murrary BM, Venuto RC. Clinic Transplant 1995; 9(4) : 289-96.

Post-transplant diabetes among renal transplant recipients is more prevalent in the African-American population. However, it is unknown if methylprednisolone (a commonly prescribed glucocorticoid in transplant patients) pharmacokinetics is altered among African-American renal allograft recipients compared to Caucasian counterparts. Therefore, the objectives of this study were to identify the occurrence of post-transplant diabetes in our clinic population and to characterize the pharmacokinetics of methylprednisolone among our African-American and Caucasian renal transplant recipients. A retrospective chart survey was done on African-American and Caucasian recipients with stable renal function and no history of diabetes pre-transplant diabetes in our clinical population. The survey was conducted from January 1985 to January 1992 in receipts with graft survival of at least 3 months. Post-transplant diabetes was defined as two fasting glucose serum concentrations greater than 140 mg/dl or one random serum glucose concentration greater than 200 mg/dl and a 2 hour post-prandial greater than 200 mg/dl. A 24-hour pharmacokinetic evaluation was conducted in a sub-group of African-American and Caucasian patients after intravenous administration of methylprednisolone. Over the survey period, 75 renal transplants (30 females; 45 males) were performed and 50 of these transplant recipients (24 females; 26 males) were not diabetic prior to the allograft placement. Of these 50 patients, 22 males and 17 females fulfilled the inclusion criteria established for the retrospective survey.

Serum lipoproteins in African-Americans and Whites with non-insulin-dependent diabetes in the US population.

Cowie CC, Howard BV, Harris MI. Circulation 1994; 90(3) : 1185-93.

BACKGROUND – Despite the significant role that dyslipidaemia is believed to play in the development of cardiovascular disease in diabetes, most studies examining diabetic dyslipidaemia in the United States have not been population based and very little data is available for African-Americans with diabetes. We used data from a national survey to compare the effect of diabetes on lipid concentrations in African-Americans and White men and women. In addition, we examined other factors related to lipid concentrations and controlled for these factors in our analysis.
METHODS AND RESULTS – The Second National Health and Nutrition Examination Survey included a representative sample of 4177 African-Americans and Whites in the US civilian non-institutionalised population 20 to 74 years old. These persons were classified as having non-insulin-dependent diabetes mellitus (NIDDM) (n = 720) or as being non-diabetic (n –3457) based on an oral glucose tolerance test and a medical history of diabetes. Subjects were given an interview and physical examination that included measurement of serum lipoproteins, body mass index, body fat distribution, dietary fat intake, alcohol consumption, frequency of smoking, and use of medications. By univariate analysis, a worse profile of mean

cholesterol, triglycerudes and high density lipoprotein cholesterol levels was generally apparent in NIDDM than in non-diabetic subjects, regardless of race or sex; a similar pattern was found for the prevalence of abnormal concentrations of these lipids. Lipid profiles appeared to be worse in Whites with NIDDM than in African Americans. For men total and low-density lipoprotein cholesterol, concentrations tended to be worse in women with NIDDM than in men. When other factors significantly affecting lipid levels were adjusted by multivariate analysis, we found that in all race/sex groups, total cholesterol was higher in NIDDM than in non-diabetic subjects but differences were not significant (P = 54), triglyceride concentrations were significantly higher in NIDDM subjects (P < .0001) and high-density lipoprotein cholesterol concentrations were lower in NIDDM subjects (P = .003). An interaction of diabetes with race was found for low-density lipoprotein cholesterol (P = .0001), where concentrations where concentrations were substantially lower in NIDDM than in non-diabetic subjects among African-Americans (P < .01) but slightly higher in NIDDM subjects among Whites (P = .33). For other lipids, no differential effect of NIDDM was found by race or sex.

CONCLUSIONS – In African-American and White men and women in the United States, NIDDM is associated with a pattern of dyslipidaemia that may potentiate the atherosclerotic process. Diabetic treatment should include aggressive treatment of dyslipidaemia to reduce this increased risk.

Incipient and overt diabetic nephropathy in African-Americans with NIDDM.

Dasmahapatra A, Bale A, Raghuwanshi MP, Reddi A, Byrne W, Suarez S, Nash F, Varagiannis E, Skurnick JH. Diabetes Care 1994; 17(4) : 297-304.

OBJECTIVE – To determine the prevalence of incipient and overt nephropathy in African- American subjects with non-insulin-dependent diabetes mellitus (NIDDM) attending a hospital clinic. Contributory factors, such as blood pressure (BP), duration and age at onset of diabetes, hyperglycemia, and body mass index (BMI) were also evaluated.

RESEARCH DESIGN AND METHODS – We recruited 116 African-American subjects with NIDDM for this cross-sectional, descriptive and analytical study. BP, BMI 24-hr urine albumin excretion, creatinine clearance, serum creatinine, lipids, and GHb levels were measured. Albumin excretion rate (AER < 20 micrograms/min), incipient nephropathy (AER 20-200 micrograms/min), and overt nephropathy (AER > 200 micrograms/min). Frequency of hypertension and nephropathy was analysed by chi 2 testing, group means were compared using analysis of variance, and linear correlations were performed between AER and other variables. Multiple regression analysis was used to examine the association of these variables while controlling for the effects of other variables.

RESULTS – Increased AER was present in 50% of our subjects, 31% had incipient and 19% had overt nephropathy. Hypertension was present in 72.4%; nephropathy, particularly overt nephropathy, was significantly more prevalent in the hypertensive group. Mean BP and diastolic blood pressure (dBP) were higher in the groups with incipient and overt nephropathy, and systolic blood pressure (sBP) was increased in overt nephropathy. Men with either form of nephropathy had higher sBP, dBP and mean BP, whereas only women with overt nephropathy had increased sBP and mean BP. Subjects with incipient or overt nephropathy had a longer duration of diabetes, and those with overt nephropathy had a younger age at onset of diabetes. By multiple regression analysis. AER correlated with younger age at diabetes onset, but not with diabetes duration. No correlation with age, lipid levels, or GHb was noted. BMI correlated with AER.

CONCLUSIONS – Incipient and overt nephropathy were observed frequently in these African-American subjects with NIDDM. Albuminuria correlated with BP, younger age at diabetes onset, and BMI. Association of albuminuria and increased cardiovascular mortality may place 50% of inner-city African-American patients with NIDDM at risk for developing cardiovascular complications.

Autonomic neuropathy in African diabetic patients.

Tuch PS, Gill GV, Huddle KR. Post grad Med J. 1994; 70(821) : 188-91.

To determine the prevalence and extend of autonomic neuropathy amongst Africans with insulin-dependent diabetes mellitus (IDDM), we investigated 50 such patients at our clinic. Mean age (+/- 1 s.d.) was 26+/- 6 years, male : female ratio was equal (25M : 25F) and duration of diabetes was 4.0 +/- 3.0 years. A battery of six validated tests of autonomic function were performed, testing both sympathetic and parasympathetic systems. Overall 16 (32%) had evidence of autonomic damage, affecting parasympathetic only in 14 and both sympathetic and parasympathetic in two. Those with autonomic neuropathy had a significantly longer diabetes duration than those without (6.0 +/- 2.8 years versus 3.1 +/- 2.7 years, P < 0.005), but there was no difference in glycosylated hemoglobin (HbA1) between the two groups. Autonomic neuropathy was also not significantly associated with peripheral neuropathy or other diabetic complications. Autonomic neuropathy was also not significantly associated with peripheral neuropathy or other diabetic complications. Autonomic neuropathy carries a poor prognosis in IDDM and this high prevalence in a group of patients with relatively short diabetes duration gives cause for concern.