GENETICS OF KIDNEYS IN DIABETES (GoKinD) STUDY
http://www.gokind.org

Description of Project

- The fundamental aim of GoKinD is to provide a resource to facilitate investigator-initiated research into the genetic basis of diabetic nephropathy. Decisions regarding the genes and chromosomal regions to be studied will be made by individual investigators and subject to a competitive review process.
- The renal disease of type 1 diabetes provides a unique opportunity to study the genetics of renal disease in a narrow, high-risk phenotype.
- The GoKinD study was designed to include both case trios (probands having both T1DM and renal disease) and control trios (probands having T1DM and no renal disease) so that the transmission of alleles that are risk factors for renal disease can be distinguished from those that are primarily risk factors for T1DM and are transmitted to both cases and controls. The collection also includes case and control singletons providing higher power for new association based statistical methods.
- The specific aims of this study:
  - Case trios: 600 type 1 diabetic patients with diabetes duration at least 10 years and clinically diagnosed diabetic nephropathy together with their parents;
  - Cases: 500 type 1 diabetic patients with diabetes duration at least 10 years and clinically diagnosed diabetic nephropathy for whom parents are not available;
  - Control trios: 500 type 1 diabetic patients with normoalbuminuria and diabetes duration at least 15 years together with their parents;
  - Controls: 500 type 1 diabetic patients with normoalbuminuria and diabetes duration at least 15 years for whom parents are not available.

Accomplishments

- Protocol written and IRB approval obtained.
- As of April 8, 2004, samples from 2,730 study participants including QC samples have been received at CDC, including 213 completed case trio families, 208 completed control trio families, 461 case singletons, and 473 control singletons.
- Recruitment is ongoing until June 30, 2004.
- 93% of the genotypes for samples received before March 23, 2004 have been completed.
- Forty-five U.K. BDA/JDRF (GoKinD UK) collection case trios have been received and are being genotyped in the same manner as the U.S. GoKinD collection.
- Specific scientific accomplishments:

- Novel HLA DQA1 genotyping method developed and published (Cordovado SK, Simone A E, Mueller PW. Tissue Antigens 58:308-314, 2001)
- New HLA alleles discovered through GoKinD: Four new DQA1 alleles have been discovered and have received names from the WHO Nomenclature Committee for Factors of the HLA System (DQA1*0402, DQA1*040102, DQA1*0404, and DQA1*0602); several new DQB1 alleles in the process of verification.

Future directions

- Estimated GoKinD recruitment: 2,350 eligible participants for which samples will have been sent to CDC including 225 case trios, 225 control trios, 500 case and 500 control singletons. The final number of participants will be available in the Fall of 2004.
- Continue core activities: DNA isolation, genotyping for HLA DRB1, DQA1, and DQB1, insulin gene, and microsatellites.
- Evaluate the contribution of other T1DM candidate genes to T1DM and nephropathy in the GoKinD collection.
- Develop new methods for T1DM Nephropathy Candidate Gene Study and evaluate methodology for genome-wide single nucleotide polymorphism (SNP) genotyping.
- Report on HLA haplotype and insulin gene risk for T1DM and renal disease at the completion of recruitment.

Materials to be made available to researchers

- DNA from study participants
- Clinical data
- Genetic data
- Plasma, serum, urine samples from study participants
- The various collaborators (see "Participants") will conduct research on the collection and distribute samples and data to the wider research community.
- All data derived from the samples must be reported back to the study database

The access policy for these materials is currently being established. In the interim, please direct requests for information to:

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Participants

Sponsors: Centers for Disease Control and Prevention
Juvenile Diabetes Research Foundation

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