

**Study of Diabetic Retinopathy in the
Family Investigation of Nephropathy and Diabetes (FIND)**

SYNOPSIS

The Family Investigation of Nephropathy and Diabetes (FIND), supported by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), is designed to identify genes responsible for diabetic nephropathy and their linkage relationships, if any, to nephropathy. The goal of the FIND Eye Study, supported by the National Eye Institute (NEI), is to evaluate FIND participants to determine whether there is a genetic link between diabetic nephropathy and diabetic retinopathy. Are there genetic factors that predispose to both diabetic nephropathy and retinopathy or uniquely to either? A secondary goal is to perform a genetic linkage study of more severe diabetic retinopathy.

There are seven (7) Participating Investigator Centers (PICs) and a Genetic Analysis and Data Coordinating Center (GADCC). The FIND will recruit probands with diabetic nephropathy and their family members from these centers. The majority of the probands will be affected with diabetic retinopathy of various degrees of severity. There will be a total of 1,294 probands in the entire study of diabetic retinopathy. We expect to find 1.5 siblings/relatives who are also diabetic per proband. The total number of participants requiring eye exams and fundus photographs will be 3,235. These participants will be recruited over a period of 3.5 years. This will be a cross-sectional study. No follow-up information is planned in this study.

Probands and those family members who are diabetic will undergo eye exams and fundus photography as described in the following eye examination procedures.

EYE EXAMINATION PROCEDURES

Introduction

Ocular examinations include visual acuity measurement, intraocular pressure measurement, and ophthalmoscopic examination.

Brief History

The patient's birth date, year of diabetes diagnosis, and history of insulin use and of prior ocular treatments are recorded (see Eye Exam Form).

Visual Acuity Measurement

A staff member in the examining ophthalmologist's office should conduct the visual acuity measurement with the method customarily used in that office using the patient's glasses, if available. If visual acuity is worse than 20/40, a pinhole should be added.

Intraocular Pressure

Intraocular pressure (IOP) should be measured using an applanation tonometer by personnel experienced in the procedure. A pneumatonometer may be used if an applanation tonometer is not available.

Pupil Dilation and Fundus Photography

Photographs should be taken through a maximally dilated pupil. It is recommended that 2 sets each of 2.5% Neo-synephrine and 1% Mydracyl be instilled 2-5 minutes apart. Photographs should be taken prior to any planned contact lens examination, which may distort the tear film and impair the quality of photographs.

Ophthalmoscopic Examination

The ophthalmologist may use his or her usual examining technique, which should include direct ophthalmoscopy or slit-lamp biomicroscopy with precorneal or contact lens in order to provide adequate magnification for detection of microaneurysms.

The following items should be recorded (the Eye Exam Form is attached):

- Retinopathy severity level;
- Presence or absence of scars of panretinal photocoagulation (or local photocoagulation, presumably for new vessels);
- Presence or absence of scars of focal or grid photocoagulation for macular edema;
- Presence or absence of macular edema (retinal thickening, with or without lipid deposits, within one disc diameter of the center of the macula), and, if present, whether or not the center of the macula is involved;
- If visual acuity is worse than 20/40 (with pinhole, if used), primary and contributing causes of the decreased acuity.