MedicalXpress

Hereditary kidney disease linked to genetic location

July 8 2010

An in-depth study of a family with multiple generations affected by kidney disease has identified a previously unknown location for a gene abnormality causing focal segmental glomerulosclerosis (FSGS), according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*).

"We identified a region in the human genome on chromosome 2p that is linked to FSGS in a large family with more than 12 affected individuals," comments Rasheed Gbadegesin, MD, MBBS (Duke University Medical Center, Durham, NC). "This discovery may eventually improve our understanding of the disease mechanisms of FSGS and may lead to identification of specific and less toxic therapy."

Gbadegesin and Michelle P. Winn, MD, Lead Investigator (Duke University Medical Center) are part of an international research team looking for new causative genes for FSGS, a disease that is characterized by progressive scarring of the kidney. It is a common cause of kidney failure worldwide, especially in children and young adults. The study included six families that were affected by familial FSGS but had none of the gene abnormalities previously shown to cause the disease.

The new chromosome 2p locus was found in one Central European family. This family—with information going back five generations—had at least 12 members affected by FSGS. The affected family members developed kidney disease at different times, from their childhood or teen years, yet rapidly progressing to end-stage kidney failure before age 30.

The study only shows the location ("locus") of the abnormal gene. "Our ultimate goal is to identify the defective gene in this family and try to understand how it causes FSGS," says Gbadegesin. "Presently we have narrowed the disease to a region of one million bases, out of over three billion bases present in humans."

Most cases of FSGS are not inherited. However, the researchers hope their discovery will lead to new insights into how FSGS develops and to improved treatments. "The available therapies for FSGS are not effective—they are nonspecific and have significant side effects," Gbadegesin explains. "Understanding the disease mechanisms has the potential for identification of specific and less toxic therapy down the road."

The researchers note that the chromosome 2p abnormality appears rare. "We have not been able to identify additional families with defects in the same region of this disease locus" says Gbadegesin.

More information: The article, entitled "A New Locus for Familial FSGS on Chromosome 2P" will appear online on July 8, 2010, doi:10.1681/ASN.2009101046

Provided by American Society of Nephrology