P-30

가족성 소아 고요산신병증 환자에서 확인된 Novel Uromodulin Gene Mutation

한림대학교 의과대학 내과학교실 및 신장연구소

이동훈 · 이영기 · 이승민 · 최명진 · 송영림 · 김수진 · 박태진
김성균 · 오지은 · 서장원 · 윤종우 · 구자룡 · 김형직 · 노정우

A Case of Familial Juvenile Hyperuricemic Nephropathy with Novel Uromodulin Gene Mutation, a Novel Heterozygous Missense Mutation in Korea

Dong Hun Lee, Young-Ki Lee, Seung Min Lee, Myung-Jin Choi, Young Rim Song
Soo Jin Kim, Tae Jin Park, Sung-Gyun Kim, Jieun Oh, Jang Won Seo
Jong-Woo Yoon, Ja-Ryong Koo, Hyung Jik Kim, Jung-Woo Noh

Department of Internal Medicine College of Medicine Hallym University

Familial juvenile hyperuricemic nephropathy (FJHN, OMIM #162000) is a rare autosomal dominant disorder characterized by hyperuricemia, gout and chronic kidney disease. More than 50 families in various ethnic groups have been described. The hyperuricemia, which is associated with decreased urinary excretion of urate, is known to causes chronic kidney disease in most patients. Affected family members show the impairment of urate excretion before puberty and usually develop hyperuricemia and gout after adolescence. Renal function gradually deteriorates and results in end-stage renal disease within 10 to 20 years. Diagnosis is suggested by a fractional excretion of uric acid of <5% (normal, 10-15%) with the symptoms and signs of FJHN. In most but not all families with FJHN, genetic studies have revealed mutations in the uromodulin (UMOD) gene located on chromosome 16p11-p13.

A 16-year-old male had been suffered from waxed and waned symptoms of swelling and pain of right 1st metatarsal joint since his age of 14. In the family history, his elderly brother, grand father, father and uncle were also diagnosed with gout and chronic kidney disease at teenage and they have been treated with allopurinol for several years. Two peripheral blood samples for gene analysis were obtained from patient and his father. DNA sequence analysis of the 10 exons of the UMOD gene was undertaken for genetical confirmation of FJHN. Gene analysis revealed a novel heterozygous missense mutation (c.1382C>A, p.Ala461Glu) that altered evolutionary conserved residues in the gene encoding UMOD. The patient has been treated with allopurinol (100 mg/day) since admission and patient' s serum uric acid level begun to decrease. Ten months later, his serum uric acid level was 6.4 mg/dL and serum creatinine level was 1.63 mg/dL. He remained clinically asymptomatic throughout this period.

In conclusion, we find a FJHN family confirmed by genetic analysis for the first time in Korea. Genetic analyses show UMOD gene mutation, a novel heterozygous missense mutation (c.1382C>A, p.Ala461Glu), which has not been reported previously.

Key Words : 고요산혈증, Uromodulin, 돌연변이
Hyperuricemia, Uromodulin. Mutation