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Is Calcitonin Receptor Gene (CTR) Polymorphism an Appropriate Marker for Calcium Oxalate Urolithiasis?

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KEY WORDS Calcitonin receptor; single nucleotide polymorphism; urolithiasis; polymerase chain reaction

ABSTRACT Formation of kidney stones is still unclear and is hypothesized to be associated with calcitonin receptor (CTR gene). The most frequently seen polymorphism within the CTR gene is Alu 1, which has been suggested as a genetic marker in search for the cause of urolithiasis. We evaluated the association between calcium oxalate stone disease and the Alu 1 polymorphism in North Indian patients. Blood samples from a control group of 105 healthy individuals and a group of 100 patients were taken.The CTR gene polymorphism was determined using Polymerase chain reaction (PCR) followed by restriction digestion. Associations between calcium oxalate stone disease and Alu-I polymorphism of CTR gene were evaluated statistically. The distribution of leucine (cuttable) homozygote in the stone patients though higher (13%) as compared to the control group (5.7%) was not statistically significantly (p= 0.185). The Odds ratio for the leucine allele of calcitonin receptor gene in calcium oxalate stone disease was 0.795 (95% CI; 0.095-6.591). No significant association between Alu1 polymorphism of CTR gene and calcium oxalate stone formation was observed. Therefore Alu1 polymorphism of CTR gene at 1377th nucleotide position may not authenticate as a suitable marker for risk assessment of urinary stone disease.

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