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SCIENTIFIC LETTER

Congenital Dyserythropoietic Anemia Type II: High Prevalence of c.1385A>G, (p.Tyr462Cys) Mutation in the Indian Population

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To the Editor: Congenital dyserythropoietic anemia (CDA) type II is the most common among other types of CDAs. It is inherited in an autosomal recessive pattern and caused due to mutations in the *SEC23B* gene [1]. Patients show moderate to severe anemia, variable transfusion requirement, icterus, pallor, hepatosplenomegaly, morphological abnormalities in the bone marrow. The gold standard for diagnosis is light and electron microscopic observation of bone marrow [2]. The molecular characterization gives a confirmed diagnosis. There are many reports of CDAII globally. However, only a few patients have been reported in the Indian population based on bone marrow morphological analysis [3].

The objective of this study was to investigate the cause of severe anemia, hepatosplenomegaly, icterus, recurrent jaundice in reference to CDA. The identification of mutation causing CDAII was performed using targeted next-generation sequencing, Sanger sequencing, and rapid detection using newly developed high-resolution melting (HRM) curve analysis. Sequence-related melt curves are generated using HRM and difference plots generated with the help of melt curves can reveal differences in the genotype [4]. We have standardized the use of HRM for the detection of common mutations causing CDAII in the Indian population. This assay was performed using Applied Biosystems StepOne^{TM} Real-Time PCR System.

Twelve CDAII patients were identified with anemia, icterus, pallor, hepatosplenomegaly and indirect hyperbilirubinemia. Sanger sequencing showed c.1385 A>G, p. Tyr462Cys mutation in all patients. A difference plot using HRM analysis showed a prominent peak of homozygous mutation p.Tyr462Cys in patients and heterozygous mutation in parents. We describe the high prevalence of c.1385 A>G mutation in the *SEC23B* gene in Indian CDAII patients. The application of HRM analysis for the identification of p.Tyr462Cys is a very simple, accurate, and cost-effective method for screening this mutation in the Indian population. The introduction of this technique is likely to impact on studying the prevalence of CDA.

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Declarations

Consent for Publication We obtained written informed consent to identify images or other personal or clinical details from all the participants. In the case of a minor, we obtained written informed consent for publications identifying pictures or additional clinical information from the parents or legal guardians.

Conflict of Interest None.

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