P-113 - IMPAIRED CHOLESTEROL BIOSYNTHESIS CAUSED BY BIALLELIC MUTATIONS IN CYP51A RESEMBLES GALACTOSEMIA

Garcia-Acero M¹,², Acosta J²

(1) Instituto de Ortopedia Infantil Roosevelt; (2) Biotecgen S.A. Bogotá, Colombia. maryale.garcia@gmail.com

**INTRODUCTION:** Congenital cataract (CC) is clinically and etiologically heterogeneous. Although mostly isolated, cataract can be part of many multisystem disorders of multiple congenital anomalies and inborn errors of metabolism, which further complicates the diagnostic process. Undoubtedly an opportune diagnosis is relevant to guide the management, justified by the metabolic causes with available treatment to rule out. **METHODOLOGY:** Male patient born of consanguineous parents with a phenotype of bilateral CC, infantile liver cirrhosis with and hypogonadism. Carbohydrate gel electrophoresis normal, galactose level concentration below 30 nmol/ml and Enzyme activity measurement of galactose-1-phosphate uridylyltransferase 2.03 (1.3-5.57) negatives. Clinical exome sequencing was performed to establish etiology. **RESULTS:** clinical exome sequencing detected a homozygous mutation (c.1454 T>C) (p.Phe485Ser) in exon 10 of the cytochrome P450, family 51, subfamily a, polypeptide 1 (CYP51A1) gene, affecting phenylalanine, an amino acid highly conserved between species, it variant not has been previously reported in public database but with bioinformatics predictions (Mutation taster, Provean, SIFT, Polyphen) that classify it as pathogenic, established as the etiology of the patient. **DISCUSSION:** The crystalline lens is an avascular tissue that receives nutrients from the aqueous humor, therefore it is exposed to the accumulation of different substances in lysosomal storage disorders, carbohydrate metabolism disorders or respiratory chain defects, despite the knowledge, biochemical tests are not available for most of these conditions, which highlights the importance of molecular studies on inborn errors of metabolism. In this case, a mutation was identified in the CYP51A1 gene that encodes lanosterol 14α-demethylase (CYP51), a regulatory enzyme involved in the late stage of the cholesterol synthesis pathway to eliminate the 14-alphamethyl group of lanosterol, causing an infantile liver failure with cataracts secondary to cholesterol accumulation, symptoms that resembles galactosemia.