Wiedemann–Steiner syndrome with a novel compound heterozygous mutation in \textit{KMT2A} gene having intellectual disability and microcephaly in a consanguineous family

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Wiedemann–Steiner syndrome (WSS) is an autosomal dominant disorder characterized by short stature, hypertrichosis, intellectual disability, developmental delay, along with facial dysmorphism. \textit{KMT2A} gene (OMIM: 159555) is one of the known genes that are responsible for WSS and still new phenotypic features continue to be added in this conditions. Here in this study we report a novel compound heterozygous c.2017G>C (p.Ala673Pro) in exon 3 and c.3180G>T (p.Glu1060Asp), mutations in exon 4 of the \textit{KMT2A} gene in two affected girls in Saudi family with microcephaly, speech disorders, walking difficulty and intellectual disability. Whole exome sequencing (WES) results showed two rare, missense variants in compound heterozygous state in the \textit{KMT2A} gene in these two affected girls whereas the both the parents were heterozygous. A compound heterozygous c.2017G>C in exon 3 and c.3180G>T in exon 4 of the \textit{KMT2A} mutation confirm the typical WSS phenotype. Furthermore, the WES results were validated by using the Sanger sequencing analysis in affected and parents along with 100 unrelated control from normal population. Our results showed similar type of genotype and phenotype of the patient is compared with the earlier reported patients in the literature, in an attempt to broaden our knowledge of this rare syndrome.

Recent Publications


Biography

Muhammad Imran Naseer joined the CEGMR as a Neuroscientist from Gyeongsang National University, South Korea. His area of expertise includes molecular, cellular and developmental neuroscience. His PhD work was based on the effect of ethanol on siRNA-Mediated GABAB1 receptor expression for downstream signaling pathways, apoptotic neurodegeneration, maternal epileptic seizure and role of GABAB1 receptor expression in early development of pre and postnatal rat brain. Currently, he is involved in neurogenetic research program at CEGMR working on common neurologic disorders including Progressive Myoclonic, Juvenile Myoclonic, Idiopathic Generalized Epilepsy, microcephaly and other neurodegenerative and neurodevelopmental disorders in the western region of Saudi Arabia using microarray platform for array CGH, CNV/SNP analysis and next generation for expression and whole exome sequencing analysis. Further aim is to study the role of GABAB receptors and KIFs genes in early neurological defects related to neurodegenerative disorders in the Saudi Arabia including epilepsy, microcephaly, Alzheimer’s and mental retardation.