Muhammad Imran Naseer et al., J Neurol Neurosci 2018, Volume 9
DOI: 10.21767/2171-6625-C2-012

Wiedemann-Steiner syndrome with a novel compound heterozygous mutation in *KMT2A* gene having intellectual disability and microcephaly in a consanguineous family

Muhammad Imran Naseer, Fehmida Bibi, Mahmood Rasool, Angham Abdulrahman Abdulkareem, Adeel G Chaudhary and **Mohammad H Al-Qahtani**
King Abdulaziz University, KSA

Wiedemann–Steiner syndrome (WSS) is an autosomal dominant disorder characterized by short stature, hypertrichosis, intellectual disability, developmental delay, along with facial dysmorphism. *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 *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 *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 *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

1. Aggarwal A, Rodriguez-Buritica DF and Northrup H (2017) Wiedemann-Steiner syndrome: Novel pathogenic variant and review of literature, European Journal of Medical Genetics 60(6):285-288.
2. Dunkerton S, Field M, Cho V, Bertram E, Whittle B, Groves A and Goel H (2015) A de novo Mutation in *KMT2A* (MLL) in monozygotic twins with Wiedemann-Steiner syndrome. American Journal of Medical Genetics Part A 167A(9):2182-7.
3. Enokizono T, Ohto T, Tanaka R, et al. (2017) Preaxial polydactyly in an individual with Wiedemann-Steine syndrome caused by a novel nonsense mutation in *KMT2A*, American Journal of Medical Genetics. Part A 173(10)2821-2825.
4. Miyake N, Tsurusaki Y, Koshimizu E, Okamoto N, et al. (2016) Delineation of clinical features in Wiedemann-Steiner syndrome caused by KMT2A mutations. Clinical Genetics 89(1):115-9.
5. Sun Y, Hu G, Liu H, Zhang X, Huang Z, Yan H, Wang L, Fan Y, Gu X and Yu Y (2017) Further delineation of the phenotype of truncating KMT2A mutations: The extended Wiedemann-Steiner syndrome, American Journal of Medical Genetics. Part A 173(2):510-514.

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.

mimrannaseer@yahoo.com