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Genetic bases in the pathogenesis of epilepsy

Ali Hosseini Bereshneh¹, Danesh Soltani¹, Mohsen Karimi¹, Mohammad Khademi¹, Ahmad Ziaoddini¹ and Arman Hashemi²

¹Tehran University of Medical Sciences, Iran

²Bushehr University of Medical Sciences, Iran

Epilepsy is episodes of epileptic seizures varying from mild to severe form and with different age onset. Excessive and abnormal brain cortex nerve cell activity resulted in these conditions. About 22 million people have epilepsy and 116,000 resulted in deaths annually. Epilepsy can be caused by both genetic and acquired roots, and the majority of cases resulted as an interaction of genetics factors and environment called multifactorial or complex inheritance. The types of epilepsy which are caused by genetic factors are more common among younger affected. There are obvious evidences that genetics plays an important role in the pathogenesis of many types of epilepsy. Family studies and risk assessment based on empirical risk shows importance of hereditary; although exact molecular pathogenesis and its interaction with environmental factors are unclear. This complexity is justifiable because more than 10000 genes contributed to the brain development. If a parent has idiopathic epilepsy, there is about a 9% to 12% risk that the child will also have the condition. Concordance rate in monozygotic twins is about 50–60% that suggests genetic factors as an essential part. Dizygotic twins' concordance rate is 15%. Recurrence risk for the first-degree relatives of affected proband is 5 times more than of the general population. Management of epilepsy and future prospective in the diagnosis and treatment and maybe in the prevention of this condition is dependent on the recognition and scrutinization of molecular pathway and pattern of inheritance in different families and syndromes.

Biography

Ali Hosseini Bereshneh is a BSc Graduate of Clinical Laboratory Sciences (Medical Technology) from Mashhad University of Medical Sciences and is last semester MSc student of Human Genetics, Department of Medical Genetics, School of Medicine, Tehran University of Medical Sciences. He has published more than 15 national and international papers in Iranian and international journals. He has published 5 national books in the area of medical genetics, genetics of dentistry and prenatal diagnosis & genetic counseling. He is a member of Iranian Medical Genetics Society and Medical Laboratory Society.

a-hoseinib@razi.tums.ac.ir

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