Секция «Экспериментальные исследования»

Genetic analysis of Dystrophin gene in people affected by Duchenne Muscular Dystrophy in Republic of Moldova

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Duchenne muscular dystrophy (DMD) is a severe X-linked recessive neuromuscular disorder which affects the muscle. DMD is among the most common human genetic disease, occurring approximately once in every 3.500 male births by Emery A.E. in 1987. DMD is allelic progressive and, usually, results in death during the second decade of life. Normally the DMD males are diagnosed at age of about 4 years, based on elevated serum concentration of creatine kinase (CK) and characteristic myopathy upon histological analysis of muscle biopsy. [1,2]

The National Centre of Reproductive Health and Medical Genetics conducted an investigation about mutations in the dystrophin gene, using multiplex PCR samples collected in the period 1992-2012. [3] Multiplex PCR which target is about 12 to 17 exons of the DMD gene to look for whole exon deletions. It is mostly qualitative or quantitative and serves for the exons in the hotspot regions. [2] This study included 206 families at risk for Duchenne muscular, requiring medical genetics consultation. DNA analysis was performed on families with at least one child with DMD or his close relatives.

Molecular study was conducted in 190 patients DMD by multiplex PCR with specific primer sets but which favour amplification of 20 different exons and analysis method RFLP polymorphic sites: pERT87-8 / Tag1, pERT87-15 / BamH1, 16intron / Tag1.

Making amplification "Multiplex" to dystrophin allowed the identification of 81.5% of patients with gene deletions. The region subject to frequent breakage was intron 44. With a high frequency identified deletion of exon was 48 (14%), exon 45 (17%), exon 47 (10%) and exon 50 (10%). Of the 206 high-risk families with DMD 198 were found informative site at least after a polymorph nuclear for DNA analysis. Carrier status confirmed was 81% (women) and refuted 17% of them (90-95% confidence level). 2% of women was impossible to determine carrier status, families being non-informative. Six patients with DMD have been diagnosed prenatally by direct analysis of RFLP test or deletions.

Application of molecular genetic testing both methods have ensured detection of about 94% of informative cases. Differences in the frequency of exon deletions gene regions involved together with the instability of Dystrophin gene observed compared to those previously observed in other studies, there are probably specific to the Moldovan population. These variations in patterns of Dystrophin gene deletions are discussed. [3]

Источники и литература

1) Koenig M., BeggsAH., Mouer M. et al. The molecular basis for Duchenne versus Becker muscular dystrophy: correlation of severity with type of deletion. Am. J Hum Gene, 1989.
2) L.M. Kunkel. Muscular dystrophy: a time of hope. Proc. R. Soc. Lond., 1989.
3) Victoria Sacară, Metodele molecular genetice aplicate în neuro-pediatrie în Republica Moldova //Buletin de perinatologie, Chişinău, RM, N. 2-3, 2004.