

Rola genu SURF1 w patogenezie zespołu Leigha sprzężonego z deficytem aktywności oksydazy cytochromu c

The role of the SURF1 gene in the pathogenesis of cytochrome c oxidase deficient Leigh syndrome

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Leigh syndrome is a progressive mitochondrial disorder of infancy and childhood, with characteristic pathological hallmarks presented as symmetric necrotizing lesions in the brain appearing regardless of diverse molecular background. Clinical presentation of the disease includes failure to thrive, developmental delay, hypotonia, ocular movement problems, abnormal respiratory rate with episodes of hyperpnoea and apnoea and bulbar dysfunction. Symptoms usually start after a few months of normal development (connected with infection, vaccination or other stress). Affected patients usually die before 5 years of life. One of the most common enzymatic defects in Leigh patients is cytochrome c oxidase deficiency associated with recessive mutations in the SURF1 gene. To date about 60 different SURF1 gene mutations in approximately 90 LS children were described in the literature. Two of them (c.311_312insAT312_321del10 and c.845_846delCT) were recurrent changes found in unrelated patients. The distribution of the various SURF1 mutations in different parts of the world points the high frequency of the c.845_846delCT in Slavonic populations (especially in Poland). From among 38 patients with mutated SURF1 gene only one has not been the carrier of the common deletion. Thus remarkable dominance allows to start the differential diagnosis of LS in each Polish patient from the direct search for c.845_846delCT SURF1 mutation. Elaborated methods of the SURF1 gene molecular analysis allow to verify the clinical recognition of the disease in LS patients in the first unspecific episode, even without diagnostic tests performed in general anaesthesia