Purpose CTD is a X-linked disorder characterized by synergistic correlation between Fe and Cu (r = 0.64), and reverse dependence between Ca and Fe/Cu (r = -0.87), increase of Cu, Fe levels. Our dates show the dynamics of development of inflammatory process in Lung and possible role of violations of microelement status of child in pathogenesis of diseases of breathing organs.

Introduction Respiratory chain disorders (RCD) are a heterogeneous group of diseases associated with multisystemic disorders. The diagnosis should be considered if there are 2 major criteria or 1 major and 2 minor criteria (Modified Walker Criteria).

Results The results showed that all the patients have psychomotor delay and more than half cases hypotonia, strabism and acquired microcephaly at presentation. Other symptoms were multisystem such as: neurosensory deafness (1/16), mioclonic epilepsy (3/16), intestinal duplication (1/16), ductus arteriosus persistent (1/16), renal hypoplasia (2/16). We found important association with endocrinological changes (9/16), hypothyroidism in most situations, but also hypoparathyroidism, insipidus diabetes, growth hormone deficient and hyperinsulinemia. Complex 2 deficiency was the most common cause of RCD (8/16). In one case we found depletion in mitochondrial DNA. No histopathological abnormalities were found in the muscle biopsy. Only (8/16) exhibited elevated plasma lactate. The treatment with Coenzyme Q10, carnitine and ketogenic diet seemed to improve their clinical course (less epileptic crisis after ketogenic diet – 6/6, better concentration after coenzyme Q10 – 6/16, less hypotonia after carnitine – 5/11).

Discussion and Conclusion Mitochondrial cytopathies should be considered in patients with an unexplained combination of neuromuscular and/or nonneuromuscular symptoms, with a progressive course, even if ophthos studies are normal. Endocrinological changes are an important association of respiratory chain disorder and hormone screening must be included in all the patients with this metabolic disease.

Results After 12 months, we found some improvement in concentration, socialization, perception and autonomy. No evolution of speech. The creatine peak was slightly better than before (5 to 8 mm). Urine creatine level reduces from 24427 to 10994 µmol/mmol creatinine.

Discussion We believe that the clinical and analytic evolutions are associated with increase creatine peak level secondary to oral glycine. Glycine, because of is inhibitory action over the neurotransmitters, in research studies has shown that helps improve memory retrieval loss in those patients that suffer from a wide variety of sleep-depriving conditions, including schizophrenia, Parkinson and Huntington diseases. He also has a sedative effect and is used in attention-deficit, by reducing the excitability of nerves cells. Glycine is useful in patients with CTD and should be encouraged to use because has no side effect and can improve some behaviours disturbances that is common in this disease.

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Abstracts