
English Summary

MITOCHONDRIAL MYOPATHY

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Mitochondria are unique organelles because they have DNA in themselves called mitochondrial DNA with specific characteristics.

The term mitochondrial myopathy refers to various syndromes with diverse pathology, histochemistry and biochemistry characteristics. These syndromes are often multisystemic with varying signs and symptoms affecting many organ systems; and were under exotic names such as CPEO (*chronic progressive external ophthalmoplegia*), MELAS (*mitochondrial encephalomyopathy, lactic acidosis, and stroke-like episodes*), MERRF (*myoclonic epilepsy with ragged-red fibers*), MNGIE (*myoneurogastrointestinal encephalopathy*), NARP (*neurogenic weakness, ataxia, retinitis pigmentosa*).

The main function of mitochondria is to produce chemical energy in the form of ATP molecule that is used by body cells. When a key component of respiration chain is missing or defective, the result is like the aftermath of a train derailment. Mutation and deletion of mitochondrial DNA results in many mitochondrial syndromes.

The common approaches are to give drug(s) that stimulate enzymatic activity for transporting electron or to give artificial electron acceptor. Gene therapy may be used in the future.

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sta, sno, shi*

CLINICAL EXPERIENCE ON HEART TRANSPLANTATION

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Improved longevity, advances in prevention, diagnosis and treatment of cardiovascular diseases have led to the rapidly growing number of patients with heart failure. The prevalence of heart failure is increasing with age, ranging from <1% in patients under 50 years of age to 5% in patients 50 to 70 years and 10% in patients over 70 years of age. Prognosis of chronic heart failure is still very bad if the underlying causes of disease are untreated. Almost 50% of patients suffered from chronic heart failure will die within 4 years, whereas 50% of end stage patients will die within 1 year. Despite different novel treatment modalities either non pharmacologic, pharmacologic or surgical procedures which have recently emerged, heart transplantation is still well accepted as treatment of choice for these patients. On December 3rd, 1967; Christian Barnard successfully performed the first human orthotopic heart transplantation in South Africa. This success was then rapidly followed by other cardiac transplant centers around the world.

The improvement in actuarial survival following cardiac transplantation is related not only to better postoperative care but also to improved patient selection. Furthermore, the selection of donor

hearts for cardiac transplantation also have impacts on success. Since the initiation of the transplantation programmes in the Heart & Diabetes Center NRW in Bad Oeynhausen, Germany on March the 13th, 1989; 1406 orthotopic heart transplantation have been successfully performed. The actuarial survival rates range between 80%, 69%, 54%, and 39% in the first, fifth, tenth and fifteenth year respectively.

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yst, gth, lhk, mms, kml, rbn, rkr*

NITROGEN OXIDES – ESSENTIAL OR POLLUTANT FOR LIFE ?

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Nitrogen oxide is generated from amino acid L-arginine by nitric oxide synthase enzymes in endothelial mammalian cells including humans. It functions as biological mediator allowing cells to communicate each other.

Nitrogen oxide has an important role in controlling blood vessel tone, blood flow and regulating platelet function, gastrointestinal motility, and reactivity of certain airways as well as urinary bladder. Nitrogen oxide also contributes to host defense and pathophysiological changes such as in life threatening hypotension and also might cause tissue damage. By understanding the physiological roles, new drug development and therapeutic application may be developed by selectively enhance or inhibit the production of nitrogen oxide from nitrogen oxide-arginine pathway in biological system.

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