Difference Between Muscular Dystrophy and Myasthenia Gravis

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Key Difference - Muscular Dystrophy vs Myasthenia Gravis

Body movements happen as a result of the collaboration between muscles and neuronal mechanisms that control them. Therefore, any failure or collapse of these components can severely impair the mobility of a person. In myasthenia gravis and muscular dystrophy, there are such limitations to the body's ability to move. A progressive loss of muscle mass and the resultant loss of muscle strength are the hallmark features of muscular dystrophy. On the other hand, myasthenia gravis is an autoimmune HYPERLINK "http://www.differencebetween.com/difference-between-disorder-and-vs-disability/" disorder characterized by the production of antibodies that block the transmission of impulses across the neuromuscular junction. The **key difference** between the two disorders is, **in myasthenia gravis the problem is at the level of neuromuscular junctions but in muscular dystrophy, the lesion is in the muscle.**

What is Muscular Dystrophy?

A progressive loss of muscle mass and the resultant loss of muscle strength are the hallmark features of muscle dystrophy. Genetic mutations, particularly in the dystrophin gene, are believed to be the cause of this disorder. There are numerous varieties of muscular dystrophy out of which Duchenne muscular dystrophy is the commonest.

Symptoms and Signs

Early symptoms include:

- Muscles pain stiffness
- Difficulty in exertion
- Waddling gait
- Imbalance
- Learning difficulties

Late manifestations include:

- Respiratory impairment due to the weakness of respiratory muscles
- Immobility
- Cardiac problems
- Shortening of muscles and tendons

Investigations

Usually, muscle biopsies are done for the purpose of identifying the pathological variant of the muscular dystrophy.

Figure 01: Muscular Dystrophy

Treatment

- There is no definitive cure, only symptomatic management is carried out
- Gene therapy as a cure for muscular dystrophy is gaining heat
- Drugs such as corticosteroids are given to control inflammation
- ACE inhibitors and beta blockers are useful in managing the cardiac complications
- Physiotherapy can be provided as an adjuvant to the pharmacotherapy

What is Myasthenia Gravis?

Myasthenia gravis is an autoimmune disorder characterized by the production of antibodies that block the transmission of impulses across the neuromuscular junction. These antibodies bind to the postsynaptic Ach receptors thus preventing the binding of Ach in the synaptic cleft to those receptors. Women are five times more affected by this condition than males. There is a significant association with other autoimmune disorders such as rheumatoid arthritis, SLE, and autoimmune thyroiditis. Concurrent thymic hyperplasia has been observed.

Clinical Features

- There is weakness of proximal limb muscles, extraocular muscles, and bulbar muscles
- There are fatigability and fluctuation with regard to the muscle weakness
- No muscle pain
- Heart is not affected, but the respiratory muscles can be affected
- Reflexes are also fatigable
- Diplopia, ptosis, and dysphagia

Investigations

- Anti ACh receptor antibodies in the serum
- Tensilon test where a dose of edrophonium is administered which gives rise to a transient improvement of the symptoms that lasts for about 5 minutes
- Imaging studies
- ESR and CRP

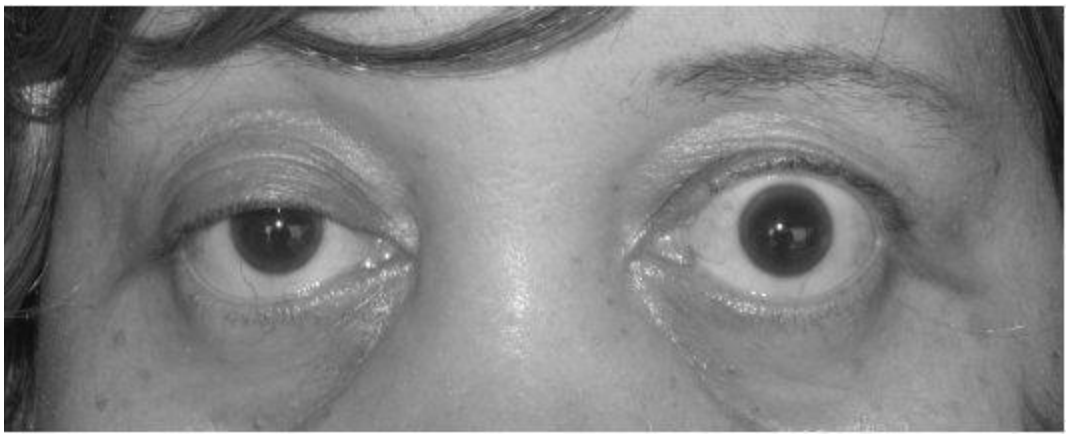

Figure 02: Ptosis in Myasthenia Gravis

Management

- Administration of anticholinesterases such as pyridostigmine
- Immunosuppressants such as corticosteroids can be given to the

patients who do not respond to anticholinesterases
- Thymectomy
- Plasmapheresis
- Intravenous immunoglobulins

What is the Similarity Between Muscular Dystrophy and Myasthenia Gravis?

- Both can impair mobility of the patient severely

What is the Difference Between Muscular Dystrophy and Myasthenia Gravis?

Muscular Dystrophy vs Myasthenia Gravis	
A progressive loss of muscle mass and the resultant loss of muscle strength are the hallmark features of muscle dystrophy.	Myasthenia gravis is an autoimmune disorder characterized by the production of antibodies that block the transmission of impulses across the neuromuscular junction.
Defect	
Defect is in the muscles	Defect is at the neuromuscular junctions
Clinical Features	
Early symptoms include: • Muscles pain stiffness • Difficulty in exertion • Waddling gait • Imbalance • Learning difficulties Late manifestations include: • Respiratory impairment due to the weakness of respiratory muscles • Immobility	Clinical features are, · There is weakness of proximal limb muscles, extraocular muscles ,and bulbar muscles · There are fatigability and fluctuation with regard to the muscle weakness · No muscle pain · Heart is not affected, but the respiratory muscles can be affected · Reflexes are also fatigable · Diplopia, ptosis ,and dysphagia

• Cardiac problems • Shortening of muscles and tendons	
Investigation	
Usually, muscle biopsies are done for the purpose of identifying the pathological variant of the muscular dystrophy.	Following investigations are done when myasthenia gravis is suspected. · Anti ACh receptor antibodies in the serum · Tensilon test where a dose of edrophonium is administered which gives rise to a transient improvement of the symptoms that lasts for about 5 minutes · Imaging studies · ESR and CRP
Management	
· There is no definitive cure, only symptomatic management is carried out · Gene therapy as a cure for muscular dystrophy is gaining heat · Drugs such as corticosteroids are given to control inflammation · ACE inhibitors and beta blockers are useful in managing the cardiac complications · Physiotherapy can be provided as an adjuvant to the pharmacotherapy	· Administration of anticholinesterases such as pyridostigmine · Immunosuppressants such as corticosteroids can be given to the patients who do not respond to anticholinesterases · Thymectomy · Plasmapheresis · Intravenous immunoglobulins

Summary - Muscular Dystrophy vs Myasthenia Gravis

A progressive loss of muscle mass and the resultant loss of muscle strength are the hallmark features of muscle dystrophy whereas myasthenia gravis is an autoimmune disorder characterized by the production of antibodies that block the transmission of impulses across the neuromuscular junction. In muscular dystrophy, the defect is in the muscles, but in myasthenia gravis, the defect is at

the neuromuscular junction. This is the difference between the two disorders.

Reference:

1. Kumar, Vinay, Stanley Leonard Robbins, Ramzi S. Cotran, Abul K. Abbas, and Nelson Fausto. Robbins and Cotran pathologic basis of disease. 9th ed. Philadelphia, Pa: Elsevier Saunders, 2010. Print.

Image Courtesy:

1.'Senator Stabenow meets with representatives of the Parent Project Muscular Dystrophy (32781281061)'By Senator Stabenow (Public Domain) via Commons Wikimedia

2.'Ptosis myasthenia gravis'By Mohankumar Kurukumbi, Roger L Weir, Janaki Kalyanam, Mansoor Nasim, Annapurni Jayam-Trouth. - Rare association of thymoma, myasthenia gravis and sarcoidosis : a case report. Journal of Medical Case Reports. 2008;2:245. doi:10.1186/1752-1947-2-245, (CC BY 2.0) via Commons Wikimedia

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