Multiple Sclerosis Interventions

Multiple sclerosis is a chronic degenerative neurologic disorder characterized by nerve fiber demyelination (refer to the Picmonic on "Multiple Sclerosis Assessment"). Although there is no cure for multiple sclerosis, drug therapy is recommended for symptomatic relief. Recommended medications include corticosteroids, interferon betas, fingolimod (Gilenya), natalizumab (Tysabri), dimethyl fumarate (Tecfidera), and mitoxantrone (Novantrone). Physical therapy and exercise may help increase coordination and decrease spasticity. Identifying factors that trigger symptoms is critical for avoiding exacerbations of the disease.



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Disease-Modifying Therapy

Corticosteroids

Quarter-on-steroids

Corticosteroids, such as prednisone and methylprednisolone, are the most helpful drugs to treat acute exacerbations of multiple sclerosis. The medications decrease edema and inflammation at the site of demyelination. Oral and intravenous steroids are similar in efficacy; however, patients who present with optic neuritis should be given intravenous methylprednisolone because oral prednisone may increase the risk of recurrence. Adrenocorticotropic hormone (ACTH) may be given if the patient cannot tolerate high doses of steroids.

Interferon Beta

Infinity-flare-gun Beta-fish

Interferon beta drugs are immunomodulators used for the initial treatment of multiple sclerosis. Examples include Betaseron (interferon beta-1b), Avonex (interferon beta-1a), Rebif (interferon beta-1a), Extavia (interferon beta-1b), and Plegridy (peginterferon beta-1a). Depending on the formulation, the medication is administered either subcutaneously or intramuscularly. Rotate injection sites with each subcutaneous dose to prevent tissue damage. Assess the patient for depression and instruct them to wear sunscreen while exposed to sun.

Dimethyl Fumarate (Tecfidera)

Diamond Fireplace

Dimethyl fumarate (Tecfidera) helps decrease inflammation by activating the NrF2 pathway. The pathway allows cells to defend themselves against oxidative stress. The medication is used to treat relapsing-remitting multiple sclerosis.

Fingolimod (Gilenya)

Finger-mob

Fingolimod (Gilenya) decreases symptoms caused by multiple sclerosis by preventing lymphocytes from reaching the central nervous system and causing damage.

Mitoxantrone (Novantrone)

Mitten-xylophone

Mitoxantrone (Novantrone) is an intravenous antineoplastic medication reserved for more active and aggressive forms of multiple sclerosis. Serious side effects include cardiotoxicity, leukemia, and infertility.

Natalizumab (Tysabri)

Nature-man

Natalizumab (Tysabri) is a monoclonal antibody administered intravenously. The medication is reserved for more active and aggressive forms of multiple sclerosis. However, the medication increases the risk of a viral brain infection resulting in progressive multifocal leukoencephalopathy.

Social Considerations

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Increase Exercise

Up-arrow Exercise-treadmill

Physical therapy and exercise are recommended to decrease muscle spasticity and increase coordination. Increasing the patient's exercise also helps retain unaffected muscle function. Water exercise is recommended, since the buoyancy gives the patient more control over the body to perform a wider range of activities.

Identify Triggers

Magnifying-glass Identifies Trigger

The patient with multiple sclerosis should be able to identify triggers that lead to exacerbations of the disease. Examples include infection, trauma, immunization, stress, and change in climate. Help the patient identify particular triggers and instruct them to avoid or minimize their effects.

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