SELF-INJECTED MEDICATIONS

Factors include the presence of anti-JCV antibodies, taking Tysabri for two years or more, and prior immunosuppressant treatment. Currently, PML has occurred in a few patients taking Gilenya, Tecfidera, or Ocrevus; some of these cases are still under investigation.

ORAL MEDICATIONS

NAME TYPE OF MEDICATION HOW ADMINISTERED AND SIDE EFFECTS

Aremco® (interferon beta-1a) immune system modulator with antiviral properties 30 micrograms taken via weekly intramuscular injection; side effects include flu-like symptoms and headache, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary

Betaseron® (interferon beta-1b) immune system modulator with antiviral properties 20 (daily) or 40 (three times weekly) micrograms taken via subcutaneous injection; side effects include injection-site reactions as an occasional systemic reaction, usually lasting only a few minutes with no long-term effects

Caspazza® (glatiramer acetate) synthetic chain of four amino acids found in myelin; it is an immune system modulator that blocks attacks on myelin 250 micrograms taken via subcutaneous injection every other day; side effects include flu-like symptoms, headache, and injection-site reactions as well as blood count and liver test abnormalities; side effects are manageable and usually temporary

Extavia® (glatiramer acetate) synthetic chain of four amino acids found in myelin; it is an immune system modulator that blocks attacks on myelin 20 (daily) or 40 (three times weekly) micrograms taken via subcutaneous injection; side effects include injection-site reactions as an occasional systemic reaction, usually lasting only a few minutes with no long-term effects

Gilenya® (teriflunomide) immune system modulator with antiviral properties 125 micrograms taken via subcutaneous injection once every two weeks; side effects include flu-like symptoms, headache, and injection-site reactions as well as blood count and liver test abnormalities; side effects are manageable and usually temporary

Grilevo® ( cladribine) selective targets and depletes the immune system’s lymph cells from lymph nodes; blocks the movement of T cells and B cells; produced by a S1P1 and the S1P5 receptors, which have neuroprotective effects, depletes the immune system’s damaging T cells from leaving the blood, and suppresses potentially damaging T cells from entering the blood-brain barrier, which blocks potentially harmful immune system reactions. Mavensea (300 micrograms dose given via IV infusion every four weeks; side effects include rash, itching, headache, fever, and convulsions. Women who could become pregnant should avoid this treatment because it is potentially harmful to the fetus."

Lemtrada® (natalizumab) humanized antibody designed to selectively target CD20-positive B cells; type of immune cell important in the MS-disease process. 20 (daily) or 40 (three times weekly) micrograms taken via subcutaneous injection; side effects include injection-site reactions, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary

Mayzent® (cladribine) selective targets and depletes the immune system’s lymph cells from lymph nodes; blocks the movement of T cells and B cells; produced by a S1P1 and the S1P5 receptors, which have neuroprotective effects, depletes the immune system’s damaging T cells from leaving the blood, and suppresses potentially damaging T cells from entering the blood-brain barrier, which blocks potentially harmful immune system reactions. Mavensea (300 micrograms dose given via IV infusion every four weeks; side effects include rash, itching, headache, fever, and convulsions. Women who could become pregnant should avoid this treatment because it is potentially harmful to the fetus."

INFUSED MEDICATIONS

NAME TYPE OF MEDICATION HOW ADMINISTERED AND SIDE EFFECTS

Lum iris® ( alim dinalum) humanized monoclonal anti-body that rapidly depletes suppressing immune system myelin; it can damage the myelin and nerves of the CNS Five-day course of 12 mgs daily via intravenous (IV) infusion, side effects include rash, itching, headache, fever, nausea, numbness, dizziness, diarrhea, and possibly PML*, a viral brain infection

Novoferon® ( interleukin-2) immune system modulator with antiviral properties 125 micrograms taken via subcutaneous injection once every other day; side effects include injection-site reactions, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary

Ocrevus® ( natalizumab) humanized monoclonal anti-body designed to selectively target CD20-positive B cells; type of immune cell important in the MS-disease process. 600-microgram dose given via IV every six months, initial dose given in two 300-microgram doses, side effects include potentially serious infusion reactions (respiratory and skin infections most common), adverse events include infection, breast cancer, and death."

Tysabri® (natalizumab) humanized monoclonal antibody, inhibits adhesion molecules, thought to prevent damaging immune cells from potentially damaging nerves of the CNS. 300 mg dose given via IV infusion every four weeks, side effects include headache, fatigue, depression, joint pain, abdominal discomfort, and infection, serious adverse events include infection (including pneumococcal), and the potential for PML* as well as an occasional systemic reaction, usually lasting only a few minutes with no long-term effects.

*Progressive multifocal leukoencephalopathy (PML), a potentially fatal, rare infection of the brain, can develop in some individuals taking Tysabri. Risk factors include the presence of anti-JCV antibodies, taking Tysabri for two years or more, and prior immunosuppressant treatment. Currently, PML has occurred in a few patients taking Gilenya, Tecfidera, or Ocrevus; some of these cases are still under investigation.