



**National
Multiple Sclerosis
Society**
Greater
New England
Chapter

MS Progress Notes...

A newsletter for health professionals

Volume 6, number 2

Fall 2011

IMMUNIZATION IN PATIENTS WITH MULTIPLE SCLEROSIS

ANTHONY IZZO, DO and NEETA GARG, MD

With one flu season behind us and the next around the corner, clinicians around the region are left wondering whether or not their patients with MS should receive the seasonal flu vaccine. To address these issues and concerns, the guidelines on immunization for MS patients have been developed based on review of evidence. This season's newsletter will provide a summary of these guidelines to help clinicians decide when to vaccinate their MS patients and which vaccines are safe to administer.

Common infections are no more common in patients with MS than control population, but it is well established that common infections are associated with an increased risk of MS relapse. Vaccination for common infectious diseases such as influenza can therefore reduce the risk of these infections and therefore the risk of MS exacerbations.

There have been concerns about an association between hepatitis B virus (HBV) vaccine and multiple sclerosis.¹ However, multiple epidemiologic studies have shown no significant relationship between the HBV vaccine and either development of MS or MS relapses.¹⁻⁴ Other common immunizations also do not increase the risk of MS or relapse and may be helpful in preventing infections that may increase the risk of relapse.⁵⁻⁶ In a prospective study, no increased risk of MS was seen with tetanus and influenza vaccinations.⁶

According to the Immunization Panel of the Multiple Sclerosis Council for Clinical Practice Guidelines, influenza, hepatitis B, varicella, tetanus, other vaccines should be used according to the Centers for Disease Control (CDC) indication for these vaccines.⁷ The pneumococcal vaccine is indicated for patients with compromised pulmonary function, such as wheelchair-dependant or bed-bound patients, as these patients are more prone to pneumonia.⁸ There is a divided opinion regarding usefulness of influenza vaccine in patients with MS who otherwise do not meet the CDC indication criteria for flu vaccine. The panel recommends that the potential risks and benefits of vaccination in these cases

should be discussed with the individual patient. However since the seasonal flu (like any other infection) can precipitate MS exacerbation, it is therefore appropriate to offer influenza immunization to all MS patients unless there are any contraindications. Similarly, H1N1 (Swine Flu) vaccine is generally indicated for persons aged 25-64 who have medical conditions that put them at higher risk for influenza-related complications. A person with advanced MS or someone with less severe disease with reduced pulmonary function is considered at risk for complications and a good candidate for the de-activated H1N1 vaccine. For persons with less severe MS, the decision regarding H1N1 vaccine should be made in discussion with their physician and neurologist.

Live-virus vaccines could possibly cause an increase in disease activity in people with MS especially in persons taking immunosuppressive medications such as mitoxantrone, cyclophosphamide, azathioprine or methotrexate. However, this has not been observed, and no convincing prospective studies of this issue are available.⁷

In general, the decision regarding administration of live vaccines including MMR vaccine, varicella, yellow fever, poliomyelitis, oral typhoid, BCG, and rotavirus vaccine should be individualized as inadequate information is available on safety of these vaccines in MS patients. FluMist Intranasal[®] (a live attenuated vaccine) and attenuated nasal spray version of the H1N1 are not generally recommended for people with MS and should be avoided in patients on immunosuppressive medication.

There have also been questions about the efficacy of immunization in patients with MS and the information is scarce for most commonly used vaccines. In patients on chemotherapy or other immunosuppressive drugs, whenever feasible, clinicians should provide all indicated vaccines before initiation of such therapy. Inactivated vaccines can be administered during low dose intermittent or maintenance immunosuppressive therapy, however, the antibody response and effectiveness of such

vaccination might be suboptimal. The patients vaccinated within 2 weeks before starting immunosuppressive therapy or while receiving immunosuppressive therapy should be revaccinated at least 3 months after such therapy is discontinued.

In summary, it is important for patients with MS to receive regular vaccinations for communicable diseases since influenza and other common infections can precipitate a relapse. The patients with MS should receive the annual influenza vaccine and also the pneumonia vaccine. Live-attenuated vaccines should generally be avoided, especially if the patients are on chemotherapy or other immunosuppressive drugs. If there is any doubt whether or not an MS patient (whether on chemotherapy or not) should receive a given vaccine, it should be discussed with the patient's neurologist, and specific guidelines if they exist should be followed.

Table 1 is compiled and adapted from the Centers for Disease Control website and the National Multiple Sclerosis Society Website. Vaccine common brand names obtained from MICROMEDEX

Vaccine & Common Brand Name(s)	Vaccine Type	Safe for MS patients?
MMR (measles/mumps/rubella)	Live attenuated	NO
Oral Polio (OPV)	Live attenuated	NO
Varicella (Zostavax®, Varivax®)	Live attenuated	NO
Inactive Polio Vaccine	Inactivated	YES
Inactive Influenza Vaccine (Fluarix®)	Inactivated	YES
Influenza Nasal Vaccine (FluMist®)	Live attenuated	NO
Influenza A H1N1 2009 Monovalent Vaccine	Inactivated	YES
Influenza A H1N1 2009 Monovalent Vaccine, Live Intranasal	Live attenuated	NO
Diphtheria/Tetanus/Pertussis (DTP, DTaP or dT, Tdap) (Adacel®, Boostrix®, Pediarix®, Daptacel®, Tripedia®, Infarix®, Pentacel®, Daptacel®)	Toxoid	YES
Haemophilus influenzae type B Hib (Hibrix®, ActHib®, PedVaxHib®)	Component	YES
Hepatitis B (Recombivax-HB®, Engerix-B®, Twinrix®)	Component	YES
Hepatitis A (Havrix®, Vaqta®, Twinrix®)	Inactivated	YES

Pneumococcal vaccine (Pneumovax 23®, Prevnar®)	Component*	YES
Meningococcal vaccine (Menactra®, Menveo®)	Toxoid Conjugate	YES
Yellow Fever vaccine (Yf-Vax®)	Live attenuated	NO
Typhoid vaccine (Vivotif®)	Live attenuated	NO
Human Papilloma Virus (HPV) (Gardasil®)	Component	YES
Tetanus Toxoid	Toxoid	YES
Rotavirus (Rotateq®)	Live attenuated	NO

*A vaccine that contains only some components of an infectious organism to minimize the risk or occurrence of adverse reactions

Suggested References:

- Hernan MA, Jick SS, Olek MJ, Jick H. Recombinant hepatitis B vaccine and the risk of multiple sclerosis: a prospective study. *Neurology*. Sep 14 2004;63(5):838-842.
- DeStefano F, Verstraeten T, Chen RT. Hepatitis B vaccine and risk of multiple sclerosis. *Expert Rev Vaccines*. Dec 2002;1(4):461-466.
- Ascherio A, Zhang SM, Hernan MA, et al. Hepatitis B vaccination and the risk of multiple sclerosis. *N Engl J Med*. Feb 1 2001;344(5):327-332.
- Mikaeloff Y, Caridade G, Rossier M, Suissa S, Tardieu M. Hepatitis B vaccination and the risk of childhood-onset multiple sclerosis. *Arch Pediatr Adolesc Med*. Dec 2007;161(12):1176-1182.
- Salemi S, D'Amelio R. Are anti-infectious vaccinations safe and effective in patients with autoimmunity? *Int Rev Immunol*. Jun;29(3):270-314.
- Confavreux C, Suissa S, Saddier P, Bourdes V, Vukusic S. Vaccinations and the risk of relapse in multiple sclerosis. *Vaccines in Multiple Sclerosis Study Group*. *N Engl J Med*. Feb 1 2001;344(5):319-326.
- Rutschmann OT, McCrory DC, Matchar DB. Immunization and MS: a summary of published evidence and recommendations. *Neurology*. Dec 24 2002;59(12):1837-1843.
- Vinogradova Y, Hippisley-Cox J, Coupland C. Identification of new risk factors for pneumonia: population-based case-control study. *Br J Gen Pract*. Oct 2009;59(567):e329-338.

Anthony Izzo, DO is a second year neurology resident at University of Massachusetts Memorial Medical Center, in Worcester, Massachusetts.

Neeta Garg, MD is Clinical Associate Professor of Neurology at University of Massachusetts Medical School and Associate Director at UMass Memorial Health Care MS Center, in Worcester, Massachusetts.