CLINICAL VIGNETTE

Vaccinations in Rheumatology

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Introduction

Patients with autoimmune rheumatic diseases are at considerable risk for infections. This is due to the underlying immune abnormality and superimposed immunosuppression use. Immunization is especially important for this population.

This is a brief review of currently available vaccinations, scheduling guidelines and vaccine contraindications in adult rheumatology patients based on a case presentation. This discussion will exclude COVID vaccinations.

Case

A 26-year-old medical student returns to rheumatology for a follow up. She has well-controlled seropositive, non-erosive rheumatoid arthritis. She is currently taking methotrexate 20 mg SQ weekly and oral tofacitinib, a Jak- kinase inhibitor. She has questions about the shingles vaccine and whether she should receive any additional vaccinations.

Discussion

The immune response and safety of vaccines may differ in patients with rheumatic diseases compared to the general population. Rheumatology patients may benefit from modified vaccine indications and adjustments to vaccination schedules. This discussion will cover vaccination indications and review current guidelines on holding medications pre- and post-vaccination,

Influenza Vaccination

The American College of Rheumatology (ACR) recommends high-dose or adjuvanted influenza vaccination over regular-dose influenza vaccination for patients older than 18 years.[1] They also recommend, if the high dose vaccine is not available, the regular dose should be given to avoid delay.

The high dose vaccine contains 4 x the antigen compared to the regular dose. The adjuvanted vaccine contains the regular dose of the vaccine with the MF59 adjuvant which may be associated with greater chances of reaction.[2]

Pneumococcal Vaccination

Pneumococcal vaccination is strongly recommended for immunocompromised patients under the age of 65.[1] The CDC currently recommends PCV15 followed by PPSV23 one year later, or PCV20, for adults under 65 taking immunosuppression who have not been vaccinated.[3] A single dose PCV 20 dose is now available and will replace the previous double dose strategy.[3]

Recombinant Varicella- Zoster Vaccination (VZV)

VZV recombinant vaccine is strongly recommended for patients older than 18 on immunosuppressant medications.[1] Patients with lupus and Rheumatoid arthritis are at higher risk for zoster than the older population.[4] The VZV vaccine has been shown to be effective in patients undergoing renal and stem cell transplant.[5,6] Mild flares and reactogenicity are not unusual post- vaccine.[7]

Human Papillomavirus Vaccination (HPV)

Vaccination against HPV is recommended for previously unvaccinated patients older than 26 but younger than 45 on immunosuppressants not previously vaccinated.[1] Two previous studies demonstrated patients with lupus tolerate HPV vaccine well,[8,9] and it is also clear that immunosuppression increases risk of cervical dysplasia and cervical cancer.[10]

Hepatitis B Vaccination

Universal vaccination is recommended for all neonates, regardless of maternal hepatitis B surface antigen (HBsAg) status. Catch-up immunization is recommended for persons age <60 years not vaccinated for HBV or whose HBV vaccination status is unknown.

Booster doses should be administered to immunocompromised patients if the antibody level declines to <10 milli-international units/mL.[11]

Medication management for non–live attenuated vaccine administration-

Medication	Influenza Vaccine	All other non-live Vaccines
Methotrexate	Hold 2 weeks post vaccine	Continue methotrexate
Rituximab	Continue medication	Hold 2 weeks post vaccine
All other immunosuppressants	Continue medication	Continue medication

Medication management at the time of live attenuated virus vaccine administration-

Medication	Pre- vaccine	Post- Vaccine
Steroids Methotrexate Azathioprine Leflunomide Mycophenolate Calcineurin inhibitors Oral cyclophosphamide	Hold for 4 weeks	Hold for 4 weeks
TNF-I IL-17, IL-12/23, IL-23 BAFF/BLyS inhibitors IL-6 pathway inhibitors Anakinra Rilonacept Abatacept Anifrolumab IV Cyclophosphamide	Hold for 1 dose	Hold for 4 weeks
JAK inhibitors	Hold for 1 week	Hold for 4 weeks
Rituximab	Hold for 6 months	Hold for 4 weeks
IVIG	8-11 months	Hold for 4 weeks

Conclusion

Rheumatology patients should be vaccinated even with high disease activity and use of immunosuppression. Shared decision-making with patients is encouraged.

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