Vaccination and Autoimmune Diseases: Health or Harm

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Autoimmune diseases (AIDs) are diseases arising from various causes. It has been well recognized that infections, hormones, and environments can trigger AIDs in a prone subject. Infection and AIDs share a very close relationship. Infection can trigger and exacerbate AIDs through molecular mimicry, epitope spreading, and polyclonal activation. On the other hand, infection can be a complication of immunosuppressive therapy.

When vaccines are administered to healthy individuals, they can produce immunity that prevents infection or lessens its severity. Vaccines, like other drugs, can be associated with adverse events. Although many of these adverse events are transient and benign, they can rarely result in hypersensitive reaction, causing induction of autoimmunity that may be severe and possibly fatal. Aluminum compounds (particularly aluminum hydroxide and phosphate) are used commonly as adjuvant in many vaccines to enhance an immunological response. They can enhance the body to recognize “non self” antigens more effectively, which in turn can trigger both adaptive and innate immune responses better. Several immunologic conditions/diseases have been reported as complications of vaccines, together with the induction of various auto-antibodies produced, immune thrombocytopenia, auto-inflammatory syndrome induced by adjuvants (ASIA), Gullain-Barre syndrome, multiple sclerosis, transverse myelitis, autoimmune hepatitis, vasculitides, systemic lupus erythematosus, rheumatoid arthritis, polydermatomyositis, acute disseminated encephalomyelitis (ADEM), etc.

Killed vaccine can be given to AIDs patients at any time during the course of treatment. However, live vaccines are contraindicated in AIDs patients having received a moderate or high dose of immunosuppressive drugs, which then cause severe disseminated infections. Furthermore, the efficacy of vaccination can be reduced during immunosuppressive therapy. Therefore, vaccination in AIDs patients should be planned, and ideally given prior to the initiation of immunosuppressive drugs. Whether vaccines can trigger flare or exacerbate underlying AIDs is not clear due to limited data. A balance between safety and efficacy should be carefully considered prior to vaccination in patients with AIDs.

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