VACCINOLOGY I

IMMUNOLOGY OF VACCINES - AN UPDATE

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Abstract: *Immunology is a complex subject but understanding the basic functions of the immune system is useful in order to know how the vaccines work, the basis of recommendations for their use, various immunization schedules, combination of vaccines, modifications in reference to epidemiology of the disease, special situations, etc. It is interesting to know how the immune system reacts to live vaccines, inactivated vaccines, polysaccharide and conjugated vaccines. The functioning of antigen presenting cells, dendritic cells, germinal centres and marginal zones in spleen and lymph nodes is very complex. T cell dependent and T cell independent immune responses to different vaccines decide the quality of antibodies and duration of protection. They further decide the number of primary doses and need for boosting. Due to the presence of immune memory, there is no need to restart the entire schedule in case of interrupted vaccinations. The primary and secondary immune responses explain the lag period, types of immunoglobulins produced and duration of protection. The influence of extremes of age, malnutrition, genetic and environmental factors on the immunology of vaccination is a fascinating study.*

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Points to Remember

- ***Understanding basics of the immune system is useful to learn how vaccines work, basis of recommendation of various immunization schedules, combination of vaccines, modifications in reference to epidemiology of disease and special situations.***
- ***T cell dependent and T cell independent immune responses to various vaccines decide the quality of antibodies and duration of protection.***
- ***Because of immune memory there is no need to restart the entire vaccine schedule in case of an interruption. This phenomenon also decides the need for booster doses.***
- ***The primary and secondary immune responses explain lag period, types of immunoglobulins and duration of protection.***
- ***Extremes of age, malnutrition, genetic and environmental factors also play a role in immunological response to vaccines.***

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