

SUMMARY

1. The word immunity is derived from the Latin word *immunes*, which means “exempt from.” Immunity is usually defined as a state of relative resistance to infection. Substances capable of stimulating immune mechanisms are called antigens.
2. Components of the immune system: – Lymphocytes – Cellular immunity – Humoral immunity – Immunoglobulin – Lymph nodes – Spleen – Thymus.
3. There are two types of immunity: -
 - Active immunity.
 - Passive immunity
4. Mechanism of immunomodulation:-
 - Drugs may modulate immune mechanism by either **suppressing** or by **stimulating** one or more of the following steps:
 - Antigen recognition & phagocytosis
 - Lymphocyte proliferation/differentiation
 - Synthesis of antibodies
 - Ag –Ab interaction
 - Release of mediators due to immune response
 - Modification of target tissue response
5. Immunomodulators types:-All drugs which modify immune response generally categorized as immunomodulators. These can either function as
6. A. Immunosuppressants
7. B. Immunostimulants
8. Immunosuppressants are the drugs which inhibit cellular/humoral or both types of immune responses, & have their major use in **organ transplantation & autoimmune disease** • Problems arising – Life long use Infection, cancers Nephrotoxicity Diabetogenic
9. Immunosuppressants:-
 - Glucocorticoids
 - Calcineurin inhibitors- Cyclosporine, Tacrolimus
 - Antiproliferative/antimetabolic agents- Sirolimus, Everolimus, Azathioprine, Mycophenolate Mofetil.
10. Others – methotrexate, cyclophosphamide, thalidomide & chlorambucil
 - Antibodies- Antithymocyte globulin, Anti CD3 monoclonal antibody, Muromonab, Anti IL-2 receptor antibody, Daclizumab, basiliximab, Anti TNF alpha – infliximab, etanercept.

11. Therapeutic uses:-

- Transplant rejection
- GVH – BM transplantation
- Autoimmune diseases – RA, SLE, Hematological conditions, and others.
- Psoriasis
- Inflammatory Bowel Disease

12. Common side effects:-

- Growth retardation
- Avascular Necrosis of Bone
- Risk of Infection
- Poor wound healing
- Cataract
- Hyperglycemia
- Hypertension

13. Immunostimulants:- Used as to alter the immune system.

14. Commonly used examples are following one,

- Levamisole (Rheumatoid Arthritis)
- Thalidomide (Multiple myeloma)
- BCG (Vaccine)
- Recombinant Cytokines – Interferons – Interleukin-2 (Hepatitis B)
- Vaccines
- Immune Globulin (Tetanus, Rabies – Hepatitis B)
- Rho (D) Immune Globulin (Hemolytic disease of the newborn).