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**9. Allergy** is a hypersensitive reaction of the immune system to certain antigens present in the environment.

- (i) Allergens produce immune response in an individual, e.g. pollen grains, animal dander, dust, feathers, etc.
- (ii) IgE antibodies are produced in response to allergens.
- (iii) Allergy is due to chemicals like histamine and serotonin released from the mast cells.
- (iv) Symptoms of allergy are sneezing, watery eyes, running nose, difficulty in breathing.
- (v) Antihistamine, adrenaline and steroids are taken to reduce the symptoms of allergy.

**10. Autoimmunity** is an abnormal immune response in which immune system of the body starts arthritis.

rejecting its own body cell or self cells and molecules, e.g. Rheumatoid

**11. AIDS or Acquired Immuno Deficiency Syndrome** was first reported in 1981 in USA.

- (i) The causative agent is Human Immunodeficiency Virus (HIV).
- (ii) HIV belongs to the group of viruses called retrovirus. It has RNA genome enclosed in an envelope.
- (iii) HIV is transmitted by
  - (a) Sexual contact with infected person.
  - (b) Transfusion of contaminated blood and blood products.
  - (c) Sharing infected needles.
  - (d) Infected mother to unborn child through placenta.
- (iv) People, who are susceptible to infection are:
  - (a) Drug addicts, who take intravenous drug injections.
  - (b) Individuals who are involved with multiple sexual partners.
  - (c) Individuals who require repeated blood transfusion.
  - (d) Children born to HIV positive mother.
- (v) Modes of HIV infection:
  - (a) Virus enters the macrophages, after entering the body of a person.
  - (b) RNA gets replicated to form viral DNA by enzyme reverse transcriptase.
  - (c) Viral DNA gets incorporated into the host cell DNA and directs the infected cells to produce virus particles.
  - (d) Macrophages continue to produce virus particles and thus, acts as HIV factory.
  - (e) These virus particles enter into helper T-lymphocytes (TH cells) in the blood, where they continue to replicate and produce viral progenies.
  - (f) The number of helper T-lymphocytes progressively decreases in the body of the infected person.
  - (g) As the number of T-cells decrease, the immunity also decreases. As a result, person cannot

produce any immune response even against common bacteria like Mycobacterium, parasite like Toxoplasma, viruses and fungi.

(h) ELISA (Enzyme Linked Immuno Sorbent Assay) is a widely used diagnostic test for AIDS.

(i) Treatment with anti-retroviral drugs is only partially effective.

(vi) Preventive measures for HIV infection are:

(a) National AIDS Control Organisation (NACO) set-up in 1991 and other NGOs educate people about AIDS.

(b) Role of WHO to prevent HIV infection:

\* Ensure use of disposable syringes and needles.

\* Ensure keeping blood banks safe from HIV.

\* Free distribution of condoms.

\* Prevention of drug abuse.

\* Discouraging unsafe sex and encouraging regular check-up.