Immunization in the World

Immunization in the world-current problems

Immunization is the process by which an individual's immune system becomes strengthened against an agent. It is done mainly through vaccination against microbe causing disease. The target of immunization in our immune system are the B-cells and T-cells. Two manners in which to approach immunization:

Active immunization-introduction of a foreign molecule into the body, which causes the body itself to generate immunity against the target

Passive immunization- pre-synthesized elements of the immune system are transferred to a person so that the body does not need to produce these elements itself

Types of vaccines

Vaccines are divided into:

- attenuated (live attenuated) - passaging the culture media of bacteria or virus loses its pathogenicity while maintaining their antigenic structure (measles , rubella , mumps , polio - Sabin polio , BCG vaccine);
- killed - a suspension of killed bacteria (Bacteria) or free from damaged virus surface antigens (pertussis , rabies , hepatitis A);
- toxoids (toxoid) - bacterial toxins suppressed toxicity and retained antigenicity (diphtheria and pertussis toxin);
- subunit - viral particles split and purified by removing the toxic parts of the viral antigen reactivity is reduced - an advantage of less adverse effects and pathological responses to vaccination (flu);
- conjugate vaccine - mostly T-independent polysaccharide antigen conjugated to immunogenic protein. The immune system of young children would be unable to respond to the antigen itself (pneumococcus , meningococci , Haemophilus influenzae type B).
- Recombinant (vector) - clone of yeast or bacteria after insertion of the gene creates a large amount of antigen (hepatitis B , pertussis);
- DNA vaccine - recombinant vaccine is similar except that the carrier is a DNA that is transferred to the cells of people vaccinated, the vaccine is currently under experimental stage;
- synthetic - chemically prepared, expected biological and chemical purity, low price;

Problems currently being faced

- Cost-this is a major concern seeing the rise in pharmaceutical prices and the current economic downfall of many countries at large.The main question becomes who pays for all the costs for the vacines,who can afford and how will we avail it to everyone since health is a basic necessity for life.

- Contraindication-this is a situation where the patient itself has a condition and not the vaccine itself having a problem. The problem that manifests usually is an anaphylactic shock, this can be adverse.

Individually we consider vaccination in persons receiving immunosuppressive therapy including corticosteroids and neurological disease in the active stage . Unfounded contraindications are manifestations of atopy , metabolic disorders including diabetes , neurological disease stabilized (with the exception of pertussis vaccination).

Reaction after vaccination

They can be local , general or unusual . Local reactions:

- edema,
- redness,
- soreness at the injection site.

Generalised overall reaction

- elevated temperature (above 37 ° C x subfebrile 38-41 ° C) fever,
- headache
- arthralgia (pain in joints or muscles)
- light rash with measles.

Unusual reactions:

- abscess at the injection site,
- high temperatures above 38 ° C,
- meningeal irritation,
- postvaccinal encephalitis .

- Regulations-in different regions of the world there are different beliefs that hinder usage of vaccine on younger generations due to their religous beliefs.
- New vaccines have been developed for prevention of HIV/AIDS with the FDA soon to approve usage of an anti-retroviral *Truvada* which showed to significantly reduce the chances of HIV infection by 46%. This has been hailed as a break through in the science arena

References

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