

Vaccines

Types of vaccines

Live (attenuated) vaccines

→ modified strains Vaccination, live, laboratory propagated viruses, or bacterias. The oldest type of vaccine. E.g.: measles, mumps, rubella, poliomyelitis, TBC, yellow fever, typhoid fever

Killed (inactivated) vaccines

→ purified suspensions of killed (disease-free) viruses or bacteria.

E.g.: whole cell vaccine against whooping cough, polio vaccine type, tick-borne encephalitis , HAV

Anatoxins

→ bacterial toxins do not harm but stimulate the production of antibodies.

E.g.: tetanus, diphtheria

Subunit and cleaved vaccines

→ vaccines prepared by decomposing the virus into smaller particles by purifying and concentrating them.

E.g.: vaccine against flu

Polysaccharide vaccines

→ are prepared by concentrating the active ingredient, the bacterial surface polysaccharide.

E.g.: meningococcal, hemophilic and pneumococcal infections

Recombinant vaccines

→ modern vaccines. They are prepared by introducing Genes encoding the production of vaccine particles into yeast, certain bacteria or tissue cultures, which then themselves produce the particles needed to develop immunity.

E.g.: HBV, Papillomavirus infections

Perspectives in the development and use of vaccines

Despite intensive vaccine development, vaccines against infections caused by antigenically more complex agents, such as parasites, yeast and mycoplasmas. Further against AIDS, malaria, lyme disease, herpes infections, rotavirus infections, papillomaviruses or better influenza vaccines, TB or cholera.

Combined vaccines are considered to be the most promising for future use. You should provide immunity against several infections at the same time. Highly effective (long-term, lifelong immunity), no side effects, easy to apply (per os), one max. Two doses, highly stable and affordable.

Dynamics of antibody production

Seroconversion = induces the synthesis of detectable antibodies after administration of the vaccine.

Primary response= after the first administration of an antigen with which the organism has not yet encountered, antibodies of the IgM, IgG class are applied.

Anamnestic reaction

Booster effect

Methods of vaccine application

Intramuscular → in children up to 2 years of age, to the anterolateral side of the thigh, deltoid muscle, to gluteus muscle - most vaccines



Vaccination of the child

Subacute → anterolateral side of the shoulder or thigh eg: measles, mumps, rubella, yellow fever vaccine, Rabies

Intradermal → TB vaccination only (left shoulder skin)

Oral → live vaccine against Poliomyelitis, certain vaccines against cholera and typhoid fever, this method is considered to be the most promising

Links

Related articles

- Active immunization
- Passive immunization
- Simultaneous combined immunization
- Specific immunity
- Non-specific immunity
- Vaccination breakdown in the Czech Republic
- Regular vaccinations in the Czech Republic (vaccination calendar)

Bibliography

- GÖPFERTOVÁ, Dana. *Epidemiologie*. 1. edition. Karolinum, 2006. ISBN 80-246-1232-1.