

Immunization During Pregnancy



Introduction

Generally, all medications and procedures that may pose a risk to the foetus should be avoided during pregnancy, unless these are absolutely necessary for the maternal well-being. Risks from vaccination are largely theoretical and the benefits of immunization usually outweigh the potential risks in women with clear indications.

The availability of vaccines has increased substantially since the 1960s. Health care providers must continually update their knowledge about indications for vaccine use.

Agents used for Immunization:

These fall into four categories.

1. **Toxoids** : These are preparations of chemically altered bacterial exotoxins.
2. **Inactivated vaccines**: These contain a suspension of heat inactivated or chemically inactivated microorganisms or portions of microorganisms.
3. **Live bacterial or viral vaccines**: These are suspensions of attenuated viral or bacterial strains selected for their reduced virulence. In all cases, they do not produce

any significant illness, but induce protective immunity.

4. **Immune globulin preparations**: These are protein fractions of pooled human plasma containing antibodies that can produce transient, passive protection in the recipient. Specific immune globulins, which are produced from plasma of donors with high antibody titres have been found useful in protection against hepatitis-B, rabies, measles, tetanus, and varicella infections.

Standard immune globulin is useful in providing protection against hepatitis-A, and measles.

Bacterial polysaccharide immune globulin has been used for protection against haemophilus influenzae type b, Neisseria meningitis, and Streptococcus pneumoniae.

Criteria for Vaccination during Pregnancy :

A systematic approach is recommended. Factors to be taken into consideration before advising immunization include

1. Previous history of exposure to the infection or suffering from the illness.
2. History of previous vaccination against the disease.
3. Documented evidence provided by an earlier serologic test report.

After considering the above information, weighing the risks of the possibility of being exposed to the infective illness and its potential consequences, the medical attendant may advise necessary immunization procedures.

Recommended immunity for Women:

Ideally all women of childbearing age should be immune to measles, mumps, rubella, diphtheria, tetanus, and poliomyelitis, by virtue of either earlier immunization or

natural infection.

Immunization of all women against common infections is advisable. However special attention is drawn to the following category of patients.

1. Women contemplating marriage and childbearing.
2. Women planning international travel, where such diseases are endemic.
3. Women travelling abroad for higher education or careers.
4. Women likely to be employed as medical help personnel.

Risk of Exposure:

It is important to assess the risk of exposure to the illness in the woman seeking advice, and to consider the alternatives available to her, before undertaking the immunization procedure.

The ideal strategy is to induce immunity to a disease before planning a pregnancy. When this has not been done, it is preferable to reduce exposure during pregnancy rather than to vaccinate, especially when a live bacterial or viral vaccine is required to be administered. The pregnant woman should be advised against travel to an endemic area posing risk for exposure to plague or yellow fever, unless she has been adequately protected by vaccination before pregnancy.

Appropriate hygienic measures decrease risks of cholera, typhoid and hepatitis.

Women who are the sexual partners of persons infected with hepatitis-B are at high risk of developing the disease.

Risk from Disease:

If the pregnant woman is susceptible, and at risk for exposure, the morbidity and mortality risks from both the maternal and foetal aspects must be both considered.

In the case of tetanus, the risks are high, and not altered

because of pregnancy. Immunization protects the mother and confers neonatal immunity as well. In the case of natural infection due to poliomyelitis, the risks of paralysis are increased during pregnancy.

Acute hepatitis-B is a serious illness, and life threatening during pregnancy. Infants born to these mothers are at risk of viral carriage and also at risk for developing fulminant neonatal hepatitis. For these reasons, every pregnant woman should be screened for hepatitis-B infection.

Risks from Immunobiologic Agents:

A vaccine must be assessed in terms of its effectiveness in conferring immunity and its potential for complicating pregnancy outcome.

Cholera vaccine is known for its poor and transient immunity.

Live oral or inactivated parenteral typhoid vaccines induce immunity in less than 80% of recipients.

Influenza vaccines confer immunity which lasts for about a year. Tetanus immunization requires booster doses every 10 years. In contrast, many immunizations confer practically a lifelong immunity in over 90% of recipients, for example, mumps, measles, rubella etc.

Although limited information is available concerning the deleterious effects of most vaccines on the developing foetus, inactivated vaccines are generally considered safe during pregnancy, although there is no scientific evidence to support concerns about potential teratogenicity. However to minimize concerns, some clinicians avoid their use during the first trimester. Immune globulins and specific immunoglobulins are considered safe during pregnancy. There is concern about the use of live viral or bacterial vaccines. These may pose a potential threat of infecting the foetus and possibly causing congenital defects. Therefore their use should be preferably avoided during pregnancy. The Immunization Division of the Center for Disease Control has studied women who became pregnant soon after being immunized for rubella,

or inadvertently received the vaccine during early pregnancy. Their results reveal that no infant was born with any evidence suggestive of congenital rubella syndrome, however a few of these babies showed positive serologic evidence suggestive of subclinical infection. These findings suggest that inadvertent rubella immunization during early pregnancy should not be considered as grounds for pregnancy termination.

Current Vaccination Indications for Pregnant Women:

Ideally, all women should be immunized prior to planning the pregnancy. However, immunisation needs to be considered under the following circumstances.

- Prior to International travel to disease endemic areas
- Sudden outbreak of disease
- Those at risk to hepatitis-B exposure

- Drug abuse (Parenteral use)
- Multiple sexual partners
- Spouse is a carrier of the disease
- Health care workers
- Workers in hemodialysis units
- Receipients of blood transfusions or blood component therapy. All pregnant women should be preferably immunized at least three months before planning a pregnancy or in the post-partum period.

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