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IMMUNIZATION DURING PREGNANCY

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Abstract: During pregnancy immune system of woman is naturally weaker than usual. This means pregnant woman is more susceptible to certain infections and illnesses which can be harmful to her and her developing baby. Vaccines can protect both a pregnant woman and her baby from vaccine -preventable infectious diseases. During pregnancy, vaccinated mothers pass on protective antibodies or infection fighting molecules to their babies before they are born. This provides some immunity against certain infectious diseases during their first few months of life, when the baby is still too young to be vaccinated. It also helps provide important protection to woman throughout her pregnancy.

Keywords: Pregnancy, immunization, live- attenuated vaccine, inactivated vaccine, toxoid, contraindications.

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INTRODUCTION

Pregnancy provides an opportunity for evaluation of a woman's immunization status. Pregnant women are a vulnerable population. They have an altered immune response and for some infections, are at increased risk of infection and at increased risk of severe outcomes once infected. The foetus, neonate and young infant can also be impacted by infections that can results in congenital abnormalities or severe illness. When considering vaccination for pregnant or breastfeeding women, it is important to distinguish between live and inactivated vaccines. There is no theoretical reason to suspect that inactivated vaccines would be associated with an increased risk of adverse events when administered during pregnancy or in breastfeeding women. Live vaccines, however, such as measles, mumps, rubella, varicella, and yellow fever, should generally not be given during pregnancy because of the theoretical risk of harm to the foetus if transmission of the vaccine virus to the foetus occurs. Ideally, the immunization status of women intending to become pregnant should be reviewed and vaccines updated as necessary prior to conception. Live vaccines, for example, can be given to non-pregnant women with the advice to avoid pregnancy for at least 28 days following immunization. Some pregnancies are unplanned, however, and immunization status will need to be assessed during the pregnancy. As a rule of thumb the vaccination with live virus or bacteria is contraindicated in pregnancy.

Immunisation can protect a pregnant woman and her unborn baby from infectious diseases. Some infectious diseases can cause serious harm to pregnant women or their unborn babies. Ideally, women would be up to date with their immunisations before they become pregnant and all women should receive influenza and whooping cough vaccines during every pregnancy. Vaccines can protect against many infectious diseases such as chickenpox, influenza, measles, mumps, rubella (German measles), diphtheria, tetanus, whooping cough (pertussis), pneumococcal disease and hepatitis B. Serious side effects or allergic reactions to vaccines are rare.

WHO (World health organisation), UNICEF (United Nations International Children's Emergency Fund), GAVI (Global Alliance For vaccine & Immunization) like organizations are providing financial help for vaccination programs. But the still the success of these vaccination programs depends on National policies.

RISK OF INFECTIOUS DISEASES DURING PREGNANCY

If a pregnant woman becomes infected with some diseases, her unborn baby can be harmed. Newborn children can also be harmed if their mothers have an infection. Examples of infections that are harmful to babies include:

Rubella – can cause defects in the brain, heart, eyes and ears of the baby and increases the risk of miscarriage and stillbirth.

Chickenpox – can cause defects in the brain, eyes, skin and limbs of the baby.

Measles – increases the risk of miscarriage, premature birth or stillbirth.

Mumps – increases the risk of miscarriage.

Hepatitis B – can cause acute hepatitis B infection that can be passed on to the baby during birth, and both mother and baby have the potential to become 'carriers' of hepatitis B (the virus is not cleared from the body).

Influenza – increases the risk of miscarriage, premature birth or stillbirth and increases the risk of severe illness and death in the mother.

Whooping cough (pertussis) – can cause pneumonia, seizures, encephalopathy and the death of the baby.

TYPES OF VACCINES:

There are two types of vaccines:

Inactivated vaccines contain whole or parts of killed germs that cannot infect you examples include influenza and TdaP (tetanus, diphtheria and pertussis)

Live attenuated vaccines contain bacteria or viruses that are weakened so that they cannot infect you; examples include varicella and MMR (measles, mumps and rubella) The best time to update vaccinations is prior to pregnancy.This is because some vaccinations are generally not given during pregnancy, such as live attenuated vaccines. However, if you are pregnant and need a vaccination, most are considered safe, such as the inactivated vaccines. In certain cases, your health care provider may recommend vaccination with a live attenuated vaccine. This might happen when the risk of catching an infection is high, such as during an outbreak.

Reactions following vaccination with inactivated vaccines are usually limited to the area where the needle was given. You may have very mild symptoms after a vaccination, such as a red or sore arm. But there is no evidence that these vaccines harm you or your baby.

PASSIVE IMMUNIZATION DURING PREGNANCY

"No known risk exist for the foetus from passive immunization of pregnant women with immune globulin preparations"

TETANUS AND DIPHTHERIA

The tetanus and diphtheria toxoid vaccine (Td) is effective in preventing tetanus and diphtheria, two potentially life-threatening conditions. Diphtheria is an infection of the nasal, pharyngeal, laryngeal, or other mucous membranes that can cause neuritis, myocarditis, thrombocytopenia, and ascending paralysis. Tetanus is an acute often fatal disease caused by exotoxin produced by clostridium tetani, leading to tetanic muscle contractions.

Td toxoid is routinely recommended for susceptible pregnant women. While no evidence exists to prove that tetanus and diphtheria toxoid are teratogenic, waiting until the second trimester of pregnancy to administer Td is a reasonable precaution, minimizing any concern about the theoretic possibility of such reactions. Previously vaccinated pregnant women who have not received a Td vaccination within the past 10 years should receive a booster dose. Pregnant women who are not immunized or only partially immunized should complete the primary series.

HEPATITIS A

Hepatitis A is a serious liver disease. It is caused by the hepatitis A virus (HAV). HAV is spread from person to person through contact with the faeces (stool) of people who are infected, which can easily happen if someone does not wash his or her hands properly. You can also get hepatitis A from food, water, or objects contaminated with HAV.

Hepatitis A vaccine is an inactivated (killed) vaccine. Safety of hepatitis A vaccination during pregnancy has not been determined. Because hepatitis A vaccine is produced from inactivated virus, the risk to the developing foetus is expected to be low. Therefore, theoretic risks of vaccination should be weighed against the risk for hepatitis A infection in pregnant women who may be at risk for exposure. Examples calling for immunization include travel to endemic areas or intravenous drug use during pregnancy. Finally, if a pregnant woman is exposed to hepatitis A, administration of immune globulin is strongly recommended; this agent is considered safe during pregnancy and is more than 85 percent effective in preventing acute hepatitis infection.

HEPATITIS B

Hepatitis B is a serious disease that affects the liver. It is caused by the hepatitis B virus. Hepatitis B can cause mild illness lasting a few weeks, or it can lead to a serious, lifelong illness. Hepatitis B infection is transmitted through contact with infected blood, sexual activity, and sharing of intravenous needle. Hepatitis B virus infection can be either acute or chronic.

Acute hepatitis B virus infection is a short-term illness that occurs within the first 6 months after someone is exposed to the hepatitis B virus. This can lead to fever, fatigue, loss of

appetite, nausea, and/or vomiting, jaundice (yellow skin or eyes, dark urine, clay-colored bowel movements) pain in muscles, joints, and stomach.

Chronic hepatitis B virus infection is a long-term illness that occurs when the hepatitis B virus remains in a person's body. Most people who go on to develop chronic hepatitis B do not have symptoms, but it is still very serious and can lead to:

Liver damage (cirrhosis)

Liver cancer

Death

The risk of developing chronic illness associated with complications of cirrhosis, hepatocellular carcinoma, and a chronic carrier state has been a key factor in the recommendation for universal vaccination of all children. Vaccination should also be offered to any interested adult and strongly recommended to those at risk. Risk factors for a pregnant woman include having had sex with a man who has sex with men, having multiple sexual partners, using or abusing intravenous drugs, having occupational exposure, and being a household contact of acutely infected persons or persons with a chronic carrier state.

The hepatitis B vaccine contains viral surface antigen produced by recombinant DNA technology. It is administered in three doses, at birth and at one and six months of age, and has minimal to no side effects. Because it contains non-infectious hepatitis B surface antigen particles and should cause no risk to the foetus, neither pregnancy nor lactation is a contraindication to vaccination.

CHICKENPOX/VARICELLA

The varicella-zoster virus causes chicken-pox and may rarely cause serious complications, such as encephalitis and pneumonia. The risk of these complications increases with age. Furthermore, up to 15 percent of infected persons have herpes zoster later in life. The varicella vaccine contains live attenuated varicella-zoster virus. Immunization during pregnancy is contraindicated because the effects on the foetus are unknown. Women who are vaccinated should avoid becoming pregnant for one month following each injection. The presence of pregnant household members does not constitute a contraindication to vaccination of others within the house. If a susceptible pregnant woman is exposed to varicella, however, administration of varicella-zoster immune globulin should be strongly considered. If a pregnant woman is inadvertently vaccinated with the varicella vaccine or becomes pregnant within four weeks of being vaccinated, she should be counselled regarding potential effects on

the foetus. Theoretic risks to the foetus are very small, and exposure to the varicella vaccine is not an indication for termination of pregnancy.

HPV

HPV vaccine is important because it protects against cancers caused by human papillomavirus (HPV) infection. HPV is a very common virus. HPV infection can cause cervical and vaginal cancers in women. This vaccine is contraindicated during pregnancy. Studies show that HPV vaccines do not cause problems for babies born to women who were vaccinated while pregnant, but more research is still needed. A pregnant woman should not get any doses of either HPV vaccine until her pregnancy is completed. Getting the HPV vaccine when pregnant is not a reason to consider ending a pregnancy. If a woman realizes that she got one or more shots of an HPV vaccine while pregnant, she should wait and finish remaining HPV vaccine doses after her pregnancy.

MMR (Measles, Mumps, and Rubella)

Measles, which is caused by the measles virus, typically presents with fever, coryza, a generally ill appearance, and a confluent, erythematous, maculopapular rash. Mortality occurs in one to two per 1,000 cases, often secondary to pneumonia or encephalitis. Mumps results from infection with the mumps virus and can lead to parotitis, meningoencephalitis, and orchitis. Neurologic complications, such as deafness, can also occur as a result of mumps infection. Rubella, or German measles, is caused by the rubella virus. Although usually a benign infection in adults, congenital rubella can result in birth defects that include cardiac, ophthalmologic, auditory, and neurologic disorders. The measles, mumps, and rubella vaccine (MMR) contains live attenuated measles, mumps, and rubella viruses. MMR and its component vaccines should not be administered to pregnant women. Women should be counselled to avoid becoming pregnant within four weeks of vaccination.

A woman who conceives within one month before or after MMM vaccination should be counselled about theoretic concerns for the foetus. However, inadvertent vaccination of a pregnant woman is not considered to be a reason to terminate the pregnancy.

INFLUENZA (Flu)

Influenza, or flu, is a respiratory illness caused by a virus. Flu is highly contagious and is usually spread by the coughs and sneezes of an infected person. There are three strains of influenza (A, B, and C). The influenza vaccine is a killed virus preparation with an annually adjusted antigenic makeup. It should be administered annually between October and December to high-risk patients. The vaccine should be administered to all pregnant women who will be in the second

or third trimester of pregnancy during the influenza season (which peaks from December to March in temperate climates but may extend into May in 20 percent of influenza seasons). This recommendation is based on data from pandemics of 1918 and 1957, as well as limited studies done since then demonstrating that women in their second or third trimesters have higher morbidity, similar to other high-risk patients, from influenza infection. Immunization should be avoided in most patients during the first trimester to avoid a coincidental association with spontaneous abortion, which is common in the first trimester. However, pregnant women with medical conditions that increase their risk for complications from influenza (e.g., asthma, cardiovascular disease, diabetes, suppressed immune system) should be vaccinated before the influenza season regardless of the pregnancy trimester. Studies of influenza immunization with more than 2,000 pregnant women have demonstrated no adverse fatal effects.

POLIO

Poliomyelitis, often called polio or infantile paralysis, is an infectious disease caused by the poliovirus. In about 0.5% of cases there is muscle weakness resulting in an inability to move. Poliovirus is an enterovirus with three different strains that cause disease. Exposure may result in asymptomatic infection as well as no paralytic and paralytic disease. Asymptomatic patients can transmit the disease to susceptible persons. The disease continues to be a problem worldwide, but all recent domestic polio cases have been caused by the strains of virus found in the oral polio vaccine (OPV). Although no adverse effects have been documented with OPV or IPV in pregnant women or their foetuses, both vaccines should be avoided during pregnancy on a theoretic basis. However, the CDC states that IPV may be administered in accordance with the recommended schedules for adults if a pregnant woman is at increased risk for infection and requires immediate protection against polio. Situations that might warrant immediate protection in pregnancy include possible occupational exposure or travel to areas of endemic polio.

OTHER VACCINATIONS

Vaccinations typically not administered on a routine basis by family physicians and other vaccines of interest include anthrax, smallpox, rabies, Japanese encephalitis, yellow fever, BCG, typhoid, cholera, and plague. These vaccines are administered only at the time of epidemic or if pregnant woman intends to travel to endemic areas.

CONCLUSION:

Social awareness regarding vaccination is must. The vaccination awareness programs should be held by education department. Which vaccines are to be used or not? All these work should be

held at teaching level. Health of a citizen depends on national vaccination program. As we all know "Prevention is better than Cure" but do we all follow it in our life? Immunization during pregnancy is vital preventive measure which serves to protect mother, foetus and infant. Vaccines recommended for all pregnant women are Influenza and Tdap. Depending upon risk factor other vaccines recommended for pregnant women are MMR, varicella, Hepatitis A & B, pneumococcal and meningococcal vaccines. There is no evidence of adverse pregnancy outcomes from the vaccination of pregnant women with inactivated virus, bacterial vaccine, or toxoid. Live vaccines may pose a theoretical risk to foetus.
The use of selected vaccines is an important aspect of prenatal care, which not only protects the maternal health but also benefits neonate.

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