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Review Article

SPECIAL DOSES OF HEPATITIS B VACCINE

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ABSTRACT

Hepatitis B is a liver disease. It is caused by the hepatitis B virus. It is spread through contact with the blood. It might suffer loss of appetite or tiredness, muscle or stomach pains, diarrhea or vomiting, or yellow skin or eyes people chronically affected cause liver cancer. Different doses can be treated the diseases like i.m, B.M. In different age group different doses are recommended according to schedule .Adverse effect are cause very rarely, some people can have a serious allergic reaction to the vaccine.

Keywords: intramuscular (i.m), Booster dose (B.D)

INTRODUCTION

Hepatitis B is a liver disease. It is caused by the hepatitis B virus. It is spread through contact with the blood, or other body fluids, of an infected person[1]. Adolescents and adults can be infected through sharing drug needles or through unprotected sex, and health-care and public safety workers are often exposed to blood in the course of their jobs. Pregnant women can infect their newborn babies. People infected with hepatitis B might not feel sick, or might suffer loss of appetite or tiredness, muscle or stomachpains, diarrhea or vomiting, or yellow skin or eyes (jaundice)[2]

Hepatitis B cells

People usually recover from hepatitis B after several weeks, but others become "chronically infected." They might not feel sick themselves, but they continue to carry the virus and can infect other people. A baby who is born to a chronically infected mother has a 70%–90% chance of being infected at birth. Many people who are chronically infected will suffer from serious problems such as cirrhosis (scarring of the liver) or liver cancer.[2]

Dosage and Administration

DOSES:- Paediatric dose 10 µg/0.5 ml

Adult dose 20 µg/1 ml [2]

By intramuscular injection only

Hepatitis B vaccine is injected into the muscle of the upper arm in adults and children .In babies and young children, it is normally injected into the anteriolateral aspect of thigh muscle. This vaccine must NOT be injected into the buttocks, into the skin or into a vein. Adults and children 16 years of age and over are given the 20 µg/1 ml vaccine. New-born babies and children below 16 years of age are given the 10 µg/0.5 ml vaccine [2,3,4].

Booster Dose

It would seem advisable to recommend a booster dose when the anti-HBs antibody titer falls below 10 IU/L, particularly for all people at risk.[2]

- After the 0, 1, 2 month primary immunisation schedule a booster dose is recommended 12 months after the first dose. The next booster may be required after 8 years[3,4].
- After the 0, 1, 6 month primary immunisation schedule a booster dose may be required after 5 years after the primary course[3,4].

SPECIAL DOSAGE RECOMMENDATION FOR NEONATES BORN OF MOTHERS WHO ARE HBV CARRIERS

The 0, 1, 2 month immunisation schedule is recommended, and should start at birth. Concomitant administration of Hepatitis B immunoglobulin not necessary, but when Hepatitis B immunoglobulin is given simultaneously with Hepatitis B a separate injection site must be chosen.

DOSAGE RECOMMENDATION FOR KNOWN OR PRESUMED EXPOSURE OF HBV

In circumstances where exposure to HBV has recently occurred (e.g. needles stick with contaminated needle) the first dose of Hepatitis B can be administered simultaneously with Hepatitis B immunoglobulin which however must be given at a separate injection site. The rapid immunisation schedule should be advised.[2,18]

Dosage recommendation for immune compromised persons

The primary immunisation schedule for chronic haemodialysis patients or persons who have an impaired immune system is four doses of **40 mcg** at 0, 1, 2 and 6 months from the date of first dose. The immunisation schedule should be adapted in order to ensure that the anti-HBs antibody titer remains above the accepted protective level of 10 IU/L.

- If the mother is known to be HBsAg negative, HB vaccine can be given along with DTP at 6, 10, 14 weeks/ 6 months. If the mother's HBsAg status is not known, it is advisable to start vaccination soon after birth to prevent perinatal transmission of the disease.
- If the mother is HBsAg positive (and especially HBeAg positive), the baby should be given Hepatitis B Immune Globulin (HBIG) within 24 hours of birth, along with HB vaccine.[1,2]

Adverse Events

Very rarely, some people can have a serious allergic reaction to the vaccine.

- Dizziness, headache, numbness, pins and needles
- Nausea, vomiting, diarrhoea, stomach pains
- Abnormal liver function
- Rash, itching and hives
- Painful joints, muscle pain
- Fever, tiredness, general body discomfort, flu-like symptoms
- A blood disorder which may cause bruising or bleeding.

- Hypersensitivity reactions, swollen glands.
- Fainting, paralysis, inflammation of the nerves, disturbance of nerve function – e.g. Guillian Barre Syndrome, multiple sclerosis, and optic neuritis (which may cause partial or complete loss of vision).
- Inflammation of the brain, degenerative disease of the brain, meningitis, seizures.
- Low blood pressure, inflammation of the blood vessels.
- Difficulty in breathing or wheezing.
- Sudden swelling of the face, erythema multiform (allergic rash).
- Arthritis.[6,7]

In very rare cases (far less than 1 child out of 10,000 shots given, or about 0.002%) children have a serious allergic reaction.Signs of a serious reaction include having trouble breathing, being hoarse or wheezy, getting hives, becoming pale or weak, having a very fast heart beat or feeling dizzy. If you do notice any serious reactions, you should call your doctor immediately[1,6,7].

Contraindications and Precautions

Hepatitis B vaccine must not be given if the person who is to have the vaccine is Allergic to Hepatitis B vaccine or any of the ingredients listed?

- Suffering from a fever or infection?.
- In pregnancy[8,9.15,16]

Contents Storage

This vaccine should be stored in a refrigerator at 2°- 8°C until it is administered to you. The doctor or nurse should check that the expiry date on the label has not passed. The vaccine must not be frozen. Discard any unused portion. Unused vaccine or partly used syringes should be disposed of safely, preferably by heat inactivation or incineration. If your doctor has given you a prescription for Hepatitis B vaccine to collect from your pharmacy (chemist) instead of giving it to you straight away, you should store the vaccine carefully. Keep it in your fridge (between 2° and 8°C)[10,11,13,14]

Each ml contains

20cg of purified Hepatitis B surface antigen

Adsorbed on Aluminium hydroxide - 1.25 mg

Preservative: Thiomersal - 0.01%

Inactive ingredients are

1. aluminium oxide hydrated
2. sodium chloride
3. disodium phosphate dehydrate
4. sodium dihydrogen phosphate
5. water for injections.[10,11,12]

Doses Recommended

0.5 ml	Single dose (Paediatric) vial
5 ml	10 doses (Paediatric) vial
1 ml	Single dose (Adult) vial
10 ml	10 doses (Adult) vial.[1,7,17]

Schedule

There are several options as shown in the following table

Schedule 1

1. 1st injection now
2. 2nd injection in one month
3. 3rd injection 6 months after first injection

Schedule 2

1. 1st injection now
2. 2nd injection in one month
3. 3rd injection 2 months after first injection

Schedule 3 (18 years and over only)

1. 1st injection now
2. 2nd injection in one week
3. 3rd injection 3 weeks after first injection [1,11,12]

TABLE NO.11,4,8

Age	Vaccines	Note
Birth	Hep-B -1	By Intramuscular injection only
6 weeks	Hep-B -2	By Intramuscular injection only
6 months	Hep-B -3	By Intramuscular injection only

FIG NO 1 HEPATITIS B CELLS

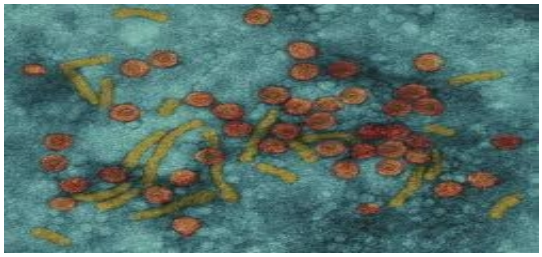

FIG.NO 2 HEPATITIS B VACCINE

FIG NO.3:-ROUTE OF ADMISITRATION

CONCLUSION

Different person-to-person transmission of HBV infection Hepatitis B vaccine may have a possible association with the development of uveitis in some patients. Immune complex deposition and adjuvant effects are potential pathogenic mechanisms.Causes of vaccine failure and HBV variants need to be assessed. To eliminate HBV transmission, global infant immunization programs and specific populations at high risk for HBV exposure have to be made treatment Persons at risk for sexual transmission. Generally the hepatitis is classified as acute and chronic where acute is the condition which which develops severe symptoms and chronic are the hepatitis which develops slowly which has a long course. The hepatitis can be cured without any medicine when diagnosed in the early stage.

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