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HEPATITIS-B AND ITS CURE: A STUDY ON THE AWARENESS LEVEL AMONG THE RURAL PEOPLE OF EASTERN UTTAR PRADESH

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ABSTRACT

Hepatitis B is the world's most common liver infection. It is caused by the hepatitis B virus (HBV), which attacks and injures the liver. It is transmitted through blood, unprotected sex, shared or re-used needles, and from an infected mother to her newborn baby during pregnancy or delivery. It can cause scarring of the organ, liver failure, and cancer. However, a vaccine against hepatitis B has been available since 1982. The vaccine is 95% effective in preventing infection and the development of chronic disease and liver cancer due to hepatitis B. The hepatitis B virus can survive outside the body for at least 7 days. During this time, the virus can still cause infection if it enters the body of a person who is not protected by the vaccine. The incubation period of the hepatitis B virus is 75 days on average but can vary from 30 to 180 days. The virus may be detected within 30 to 60 days after infection and can persist and develop into chronic hepatitis B. The purpose of the present research paper is to study the awareness level of the rural people of eastern Uttar Pradesh and to analyze the effectiveness of the measures to cure Hepatitis B.

Keywords: Hepatitis B, Awareness, Rural Mass, Health

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1. INTRODUCTION

The hepatitis B virus is a DNA virus, meaning that its genetic material is made up of deoxyribonucleic acids. It belongs to a family of viruses known as Hepadnaviridae. The virus is primarily found in the liver but is also present in the blood and certain body fluids. The Hepatitis B virus consists of a core particle (central portion) and a surrounding envelope (outer coat). The core is made up of DNA and the core antigen. The envelope contains the surface antigen. These antigens are present in the blood and are markers that are used in the diagnosis and evaluation of patients with suspected viral hepatitis. An acute hepatitis B infection may last up to six months (with or without symptoms) and infected persons can pass the virus to others during this time. A simple blood test can let a person know if the hepatitis B virus is in their blood or if they have successfully gotten rid of the virus. Until the health care provider confirms that the blood test shows that there is no more hepatitis B virus in your blood, it is important to protect others from a possible infection.

1.1. CHRONIC HEPATITIS B

People who test positive for the hepatitis B virus for more than six months (after their first blood test result) are diagnosed as having a chronic infection. This means their immune system was not able to get rid of the hepatitis B virus and it remains in their blood and liver. The risk of developing a chronic hepatitis B infection is also directly related to the age at which one first becomes exposed to the hepatitis B virus. The likelihood that infection becomes chronic depends upon the age at which a person becomes infected. Children less than 6 years of age who become infected with the hepatitis B virus are the most likely to develop chronic infections.

In infants and children:

- 80–90% of infants infected during the first year of life develop chronic infections; and
- 30–50% of children infected before the age of 6 years develop chronic infections.

In adults:

- less than 5% of otherwise healthy persons who are infected as adults will develop chronic infection; and
- 20–30% of chronically infected adults will develop cirrhosis and/or liver cancer.

Hepatitis B is dangerous because it is a "silent infection" that can infect people without them knowing it. Most people who are infected with hepatitis B are unaware of their infection and can unknowingly pass the virus to others through their blood and infected bodily fluids.

For those who become chronically infected, there is an increased risk of developing serious cirrhosis and/or liver cancer later in life. The virus can quietly and continuously attack the liver over many years without being detected. Hepatitis B is found throughout the world. Some countries have much higher rates of infection than the United States; for example, in Southeast Asia and Sub-Saharan Africa, as many as 15% to 20% of adults are chronically infected with hepatitis B.

Hepatitis B prevalence is highest in the WHO Western Pacific Region and the WHO African Region, where 6.2% and 6.1% respectively of the adult population is infected. In the WHO Eastern Mediterranean Region, the WHO South-East Asia Region and the WHO European Region, an estimated 3.3%, 2.0% and 1.6% of the general population is infected, respectively. 0.7% of the population of the WHO Region of the Americas is infected.

The most common ways to get hepatitis B include:

- **Sex.** You can get it if you have unprotected sex with someone who has it and your partner's blood, saliva, semen, or vaginal secretions enter your body.
- **Sharing needles.** The virus spreads easily via needles and syringes contaminated with infected blood.
- **Sharing toothbrushes and razors:** It can also cause hepatitis B (blood on them can carry hepatitis B)
- **Accidental needle sticks.** Health care workers and anyone else who encounters human blood can get it this way.
- **Mother to child.** Pregnant women with hepatitis B can pass it to their babies during childbirth. But there's a vaccine to prevent newborns from becoming infected.
- Hepatitis B is also spread by percutaneous or mucosal exposure to infected blood and various body fluids, as well as through saliva, menstrual, vaginal, and seminal fluids.

1.1. SYMPTOMS

Symptoms of an acute infection may include loss of appetite, joint and muscle pain, low-grade fever, and possible stomach pain. Although most people do not experience symptoms, they can appear 60-150 days after infection, with the average being 90 days or 3 months. Some people may experience more severe symptoms such as nausea, vomiting, jaundice (yellowing of the eyes and skin), or a bloated stomach that may cause them to see a healthcare provider. A small subset of persons with acute hepatitis can develop acute liver failure, which can lead to death. In some people, the hepatitis B virus can also cause a chronic liver infection that can later develop into cirrhosis (a scarring of the liver) or liver cancer.

1.2. CURRENT SCENARIO OF HEPATITIS B AND ITS TREATMENT IN INDIA

Hepatitis-B remains a significant public health concern globally, with over 250 million people estimated to be chronically infected. While it affects populations worldwide, rural areas often face distinct challenges in terms of healthcare access and awareness. Hepatitis B is a significant public health problem in India, yet disease awareness is very low among the general population. The disease is mostly acquired horizontally, but the role of vertical transmission should not be underestimated. Even though most cases are e negative disease, most patients present in the advanced stage and even with hepatocellular carcinoma, the leading cause of which is hepatitis B. High-risk groups (especially tribals) also harbour significant disease burden and have a high prevalence of occult infection, supporting the potential of unknowingly spreading the disease. Findings on the relation of genotypes with disease severity or drug action have been conflicting. Though recently, oral antivirals with a high genetic barrier to resistance have shown good viral suppression in the long term, e, and s seroconversion is poor and relapse is universal upon therapy discontinuation. As no cure is possible with the currently available therapy, the target is long-term viral suppression by prolonged administration of oral antivirals; unfortunately, this leads to poor treatment adherence, which along with the high cost of therapy results in disease progression and spread of infection. At present, therefore, emphasis should be put on health education of the general and high-risk populations, along with health care workers to increase knowledge on such preventive measures as avoiding unsafe injection practices, high-risk sex, performing unnecessary injection and blood transfusion and providing proper screening of blood products; these efforts should be combined with intensive screening and aggressive vaccination programs, especially in high-risk groups and areas of high endemicity. Vaccination strategies are still below par and logistics should be developed for wider coverage; in addition, further research should be carried out on the efficacy and mode of usage for different types of vaccine.

Hepatitis B is a significant public health problem in India, yet disease awareness is very low among the general population. The disease is mostly acquired horizontally, but the role of vertical transmission should not be underestimated. Although most cases are e negative disease, most patients present in the advanced stage and even with hepatocellular carcinoma, the leading cause of which is hepatitis B. High-risk groups (especially tribals) also harbor significant disease burden and have a high prevalence of occult infection, supporting the potential of unknowingly spreading the disease.

Hepatitis B is a common disease all over the world, and countries have been divided into three groups (high, intermediate, and low) according to its endemicity. It is estimated that about 200 cores of the world's population have been exposed to the hepatitis B virus (HBV), of whom 350 million harbor it chronically. India falls in the intermediate endemicity zone (prevalence of 2–7%, with an average of 4%), with a disease burden of about 50 million. In India, chronic hepatitis B (CHB) is acquired predominantly by horizontal transmission in early childhood (mostly from family contacts) and to lesser extent by perinatal transmission. The exact mode of horizontal transmission remains undefined, but it may be due to contact of non-intact skin or mucous membranes with tears, saliva or blood containing HBV-infected secretions or through sharing of toothbrushes. The other mode is parenteral transmission at any age (i.e. transfusion of infected blood or blood products, intravenous drug use, unsafe therapeutic injections, occupational injuries or nosocomial transmission during healthcare-related procedures such as surgery, hemodialysis and organ transplantation)

India has a large tribal population residing in different pockets spread all over the country and prevalence is very high among some (up to 65%), including occult infection rate of 10–9.5%. The majority have genotype D infection. As most infections are acquired early in life, chronicity is high, and most cases are asymptomatic. The high burden is maintained through intra-caste marriages, close living, tribal customs, illiteracy, and poor exposure to health care resources.

In a study of occult HBV infections among different high-risk groups, overall prevalence was found to be 3.2% (10% in hepatitis C/cryptogenic cirrhosis cases, 7.7% in HIV cases, 2% in malignancy cases, 2% in alcoholic cirrhosis cases, 1.7% in alcohol dependence case, and none in blood donors and patients with chronic kidney disease). Thus, in all such high-risk groups, a definite proportion have occult infection, and remain undetectable on routine screening; such infections, however, might manifest in situations of jeopardized immunity or represent an unrecognized source of infection outbreak. There is also a high prevalence of occult infection among family contacts of HBsAg-positive patients.

Overall, the seroprevalence of HBsAg reported in three recent studies that involved screening of 3686, 20104 and 4000 pregnant females ranged from 0.9% to 1.1%; this finding was not different from that in the normal population. HBV reportedly constitutes 25.6% of liver disease in pregnancy. Vertical transmission has been found in 45.2% of cases, attesting to the imprecise knowledge of HBV transmission dynamics; and, as stated above, the role of perinatal versus horizontal transmission among Indian children needs to be further refined.

2. LITERATURE REVIEW

Hepatitis B is a vaccine-preventable disease. More than 1 billion doses of the hepatitis B vaccine have been given worldwide, and it is a very safe and effective vaccine to protect infants, children and adults from hepatitis B. WHO recommends that all infants receive the hepatitis B vaccine as soon as possible after birth, preferably within 24 hours. The low incidence of chronic HBV infection in children under 5 years of age at present can be attributed to the widespread use of hepatitis B vaccine. Worldwide, in 2015, the estimated prevalence of HBV infection in this age group was about 1.3%, compared with about 4.7% in the pre-vaccination era. The birth dose should be followed by 2 or 3 doses to complete the primary series. In most cases, 1 of the following 2 options is considered appropriate:

- a 3-dose schedule of hepatitis B vaccine, with the first dose (monovalent) being given at birth and the second and third (monovalent or combined vaccine) given at the same time as the first and third doses of diphtheria, pertussis (whooping cough), and tetanus – (DTP) vaccine; or
- a 4-dose schedule, where a monovalent birth dose is followed by three monovalent or combined vaccine doses, usually given with other routine infant vaccines.

The complete vaccine series induces protective antibody levels in more than 95% of infants, children, and young adults. Protection lasts at least 20 years and is probably lifelong. Thus, WHO does not recommend booster vaccination for persons who have completed the 3-dose vaccination schedule.

All children and adolescents younger than 18 years-old and not previously vaccinated should receive the vaccine if they live in countries where there is low or intermediate endemicity.

The vaccine has an excellent record of safety and effectiveness. Since 1982, over 1 billion doses of hepatitis B vaccine have been used worldwide. In many countries where between 8–15% of children used to become chronically infected with the hepatitis B virus, vaccination has reduced the rate of chronic infection to less than 1% among immunized children. “As an anticipation of increasing cases of chronic hepatitis and mortality due to hepatitis B, WHO in 2012 recommended implementing universal immunization coverage where 95% of children have been immunized and 180 countries have adopted this step” (Podlaha et al., 2019; WHO, 2012; WHO, 2017).

All sexual partners, family and close household members living with a chronically infected person should be tested and vaccinated. It is important to remember that hepatitis B is not spread casually! It is not spread by coughing, sneezing, hugging, cooking, and sharing food. It is spread through direct contact with infected blood and bodily fluids.

3. ADDITIONAL PREVENTION MEASURES

In addition to vaccination, there are other simple ways to prevent the spread of Hepatitis B:

- Wash your hands thoroughly with soap and water after any potential exposure to blood.
- Use condoms with sexual partners.
- Avoid direct contact with blood and bodily fluids.
- Clean up blood spills with a fresh diluted bleach solution (mix 1 part bleach with 9 parts water).
- Cover all cuts carefully.
- Avoid sharing sharp items such as razors, nail clippers, toothbrushes, and earrings or body rings.
- Discard sanitary napkins and tampons into plastic bags.
- Avoid illegal street drugs (injecting, inhaling, snorting, or popping pills)
- Make sure new, sterile needles are used for ear or body piercing, tattoos, and acupuncture.

Tests of Hepatitis B

Only one sample of blood is needed for a hepatitis B blood test, but the "Hepatitis B Panel" includes three parts. All three test results are needed to fully understand whether a person is infected or not. Below is an explanation of the 3-part "Hepatitis B Panel" of blood test results.

- **HBsAg (Hepatitis B surface antigen):** A "positive" or "reactive" HBsAg test result means that the person is infected with hepatitis B. This test can detect the actual presence of the hepatitis B virus (called the "surface antigen") in your blood. If a person tests "positive," then further testing is needed to determine if this is a new "acute" infection or a "chronic" hepatitis B infection. A positive HBsAg test result means that you are infected and can spread the hepatitis B virus to others through your blood.
- **anti-HBs or HBsAb (Hepatitis B surface antibody):** A "positive" or "reactive" anti-HBs (or HBsAb) test result indicates that a person is protected against the hepatitis B virus. This protection can be the result of receiving the hepatitis B vaccine or successfully recovering from a past hepatitis B infection. This test is not routinely included in blood bank screenings. A positive anti-HBs (or HBsAb) test result means you are "immune" and protected against the hepatitis B virus and cannot be infected. You are not infected and cannot spread hepatitis B to others.
- **anti-HBc or HBcAb (Hepatitis B core antibody):** A "positive" or "reactive" anti-HBc (or HBcAb) test result indicates a past or current hepatitis B infection. The core antibody does not provide any protection against the hepatitis B virus (unlike the surface antibody described above). This test can only be fully understood by knowing the results of the first two tests (HBsAg and anti-HBs). A positive anti-HBc (or HBcAb) test result requires talking to your healthcare provider for a complete explanation of your hepatitis B status.

In March 2015, WHO launched its first "Guidelines for the prevention, care and treatment of persons living with chronic hepatitis B infection", which includes the following recommendations:

- promote the use of simple, non-invasive diagnostic tests to assess the stage of liver disease and eligibility for treatment;
- prioritize treatment for those with most advanced liver disease and at great risk of mortality; and
- recommend the preferred use of the nucleos(t)ide analogues with a high barrier to drug resistance (tenofovir and entecavir, and entecavir in children aged between 2–11 years) for first- and second-line treatment.

These guidelines also recommend lifelong treatment in those with cirrhosis, and regular monitoring for disease progression, toxicity of drugs and early detection of liver cancer.

In May 2016, The World Health Assembly adopted the first "Global Health Sector Strategy on Viral Hepatitis, 2016-2020". The strategy highlights the critical role of Universal Health Coverage, and the targets of the strategy are aligned with those of the Sustainable Development Goals. The strategy has a vision of eliminating viral hepatitis as a public health problem and this is encapsulated in the global targets of reducing new viral hepatitis infections by 90% and reducing deaths due to viral hepatitis by 65% by 2030. Actions to be taken by countries and WHO Secretariat to reach these targets are outlined in the strategy.

To support countries in moving towards achieving the global hepatitis goals under the Sustainable Development Agenda 2030, WHO is working in the following areas:

- raising awareness, promoting partnerships and mobilizing resources;
- formulating evidence-based policy and data for action;
- preventing transmission; and
- scaling up screening, care, and treatment services.

WHO also organizes World Hepatitis Day on July 28 every year to increase awareness and understanding of viral Hepatitis B

3.1. AIM OF THE STUDY

The aim of the study is to find out the level of awareness about Hepatitis B among the rural people of Eastern Uttar Pradesh.

3.2. OBJECTIVES

The main objectives of this study are:

- To find out the awareness among people about Hepatitis B in rural area Hathi Bazar, Varanasi.
- To determine what is the present condition of this disease in the village?
- To find out, what type of ground works have been done by the government regarding this disease and how common people are handling with this disease?
- To examine, how one can aware of the people of Hathi Bazar regarding the Hepatitis B?

3.3. RESEARCH QUESTIONS

1) What is the percentage of the people of village who are illiterate and are aware of Hepatitis B diseases, its cures & prevention.
2) Whether they are aware about the vaccine of Hepatitis B available in the Government hospital.

4. METHODOLOGY

This study has been conducted in one of the selected villages of Eastern Uttar Pradesh. The name of the selected village through the lottery method is Hathi Bazar of Varanasi District. The population of this village is approximately 5500 and the male population is approximately 3424, the female population is approximately 2558 & the number of children is 758. This study has been done on both literate and illiterate people of this village of different age levels. The lottery method of research is a form of random sampling, often used in qualitative research to ensure diverse perspectives are included. The lottery method helps to mitigate bias and ensure that a wide range of perspectives are represented in the study. It's particularly useful when studying topics where diverse viewpoints are important or when researchers want to avoid the influence of preconceived notions or stereotypes.

5. DESIGN OF THE STUDY

The demographic structure of the survey has been used. Mostly teenagers, and adults have been included in this study, in this quantitative research the researcher used the data of WHO & many other reports. The researcher surveyed rural people with different variables such as age, gender & literacy level based on questionnaire.

The researcher performed a systematic literature search of studies identified electronic databases. Two independent reviewers selected the relevant abstracts and articles, then extracted the requisite information.

5.1. POPULATION

According to the census 2011the population of the Hathi Bazar is nearly 5500.

Total Population	5266
Total No of Houses	729
Female Population	2558 i.e. 48.6 %
Total Literacy rate	65 %
Female Literacy rate	27.5 %
Scheduled Tribes Population	0.9 %
Scheduled Caste Population	17.9 %

Working Population	33.5
Girl Child (0 -6) Population	46.0 %

Sample size:

The sample size for this survey is 120 according to the percentage value of the population of Hathi Bazar village.

Sampling

Nonprobability technique- Systematic Random sampling has been used for consent and approval to the questionnaire until the desired number of respondents is not completed.

Instrument

The process of data collection has been done through schedule and interviews. The schedule includes a questionnaire regarding the awareness of Hepatitis B.

6. FINDINGS

Out of a total of 120 questionnaires that were used, valid questionnaires were recovered, giving a response rate of 99%. Respondents who completed the basic questionnaire information were male approx. 70%male and were female were approx.30% with a mean age of 18 – 21, 21-45 years. Most of the respondents were married (80%) rest of them (20%) single. If we talk about the education, 10% had only class 5th to 10th but they knew about hepatitis but up to class 12 had knowledge but more than 5th to 10th, all had a high school or higher education level. Our study suggests all knew about hepatitis B, but they were not very much aware about hepatitis B only they have known about it that it is kind of disease. This survey provides dissemination of better information regarding hepatitis B virus prevention and control plan" aimed to increase knowledge of prevention of HBV in more than 80% of the population. However, our research shows that most of the respondent were familiar about hepatitis B and 90% of them had at least one doses of vaccination of hepatitis B vaccine this target remains a long education on the prevention of HBV will potentially improve the health knowledge of recruits, and this will eventually positively influence their effectiveness in combat. The simultaneous continued implementation of mass hepatitis B vaccination will further remove HBV from the general population.

According to one of the doctors of the local hospital told us that the patients of hepatitis B are being noticed in this hospital. But many of them are not aware of the consequences of this disease. So, it is very necessary to aware them first. It is very necessary to provide them with effective treatment and they should be given routine checkups of DNA about the condition of the virus.

7. CONCLUSION

In this research paper, the researchers came to know that hepatitis B affects and kills millions of people worldwide as per the report of WHO, hepatitis b kills more people every year than road traffic injuries, HIV and AIDS and diabetes, the patient of hepatitis b are increasing day by day these deaths can be averted. Three doses Hepatitis B vaccination is necessary for controlling the increasing number the patients.

There should be work on ground level and campaign for the vaccination of hepatitis b vaccination at free of cost. And for the infected people the high price of treatment creates a tension in determining which patient's treatment should be a priority. Those at most immediate risk of death is not necessarily those transmitting the virus, so the goals of ending HBV transmission and ending deaths from Hepatitis B.

8. SUGGESTIONS

The researcher found that there is a big gap in awareness about this disease in people of Hathi Bazar. Here People are only familiar with the name of this disease, but they don't know how it's spread, its symptoms, prevention measures, etc.

The researcher suggests that the government should work on this matter first. To aware people of this disease. We found that treatment of this disease is very costly. The medicines that control the virus must take life-long, due to this virus the patient becomes vulnerable to other diseases which become fatal sometimes. The government should provide

medicine for this disease at the cheapest After researching hepatitis b and its treatment and awareness of the price so that poor patients can survive and easily get the medicines And this disease is dangerous like HIV and it transmits like HIV, it attack on the liver function of the body, kill the immune system, Government should do door to door campaign for the vaccination of this disease again and again so that all the people could get the vaccine. As Hepatitis-B remains a significant health challenge for rural populations, necessitating comprehensive strategies to enhance awareness and access to care hence, Future research should focus on developing culturally sensitive interventions and strengthening healthcare systems in rural areas of Uttar Pradesh to mitigate the burden of it effectively.

9. LIMITATIONS

- This kind of study takes a long time so there was a lack of time in this study.
- Sometimes people were not interested in filling in the questionnaires, and they were not even ready to talk about these issues. They hesitate and avoid discussing this issue.

CONFLICT OF INTERESTS

None.

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