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KNOWLEDGE ASSESSMENT ON HEPATITIS B INFECTION AMONG BHARATHI COLLEGE OF PHARMACY STUDENTS

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ABSTRACT

Background: The Hepatitis B virus is responsible for approximately 1.5 million deaths worldwide each year. Carriers of HBV are at increased risk of developing cirrhosis, hepatic decompensation, and hepato-cellular carcinoma (HCC). **Objectives:** To assess the knowledge of Pharmacy students about hepatitis B infection. **Study design:** A survey based prospective study was conducted at Bharathi College of Pharmacy students, Bharathinagara. Information was collected from the participants in their leisure time using a pre-designed questionnaire. The questionnaire was based on studies reported in Journals. Totally the questionnaire had 42 questions with 5 sections and each section focused on different aspects of disease such socio-demographic information, routes of transmission, mode of transmission, signs and symptoms, sequel, prevention and treatment of HBV. All the participants were explained about the study and the questions were asked to them in detail to ensure complete comprehension. **Result:** Totally 333 students participated in the study. Among these 85 were D Pharm students, 106 were B Pharm students, 124 were Pharm D students and 18 were M Pharm students. In our study pharm D students having more knowledge i.e 88.08% followed by B. pharm students 84.51%, D. pharm students 77.33% and M. pharm students having 76.11% of knowledge. Our study shows that all participants having more knowledge about treatment of hepatitis B virus. **Conclusion:** All pharmacy students have very good knowledge about Hepatitis B virus. Study reveals that pharm D (88.08%) students having more knowledge and M. Pharm students having least knowledge about HBV.

KEYWORDS: HBV, Hepatitis B virus, type B hepatitis, serum hepatitis, homologous serum jaundice, Hepatocellular Carcinoma (HCC), Prospective study.

INTRODUCTION

An estimated 350 million persons worldwide are chronically infected with Hepatitis B virus (HBV). In the United States, there are an estimated 1.25 million hepatitis B carriers, defined as persons positive for hepatitis B surface antigen (HBsAg) for more than 6 months. The virus is responsible for approximately 1.5 million deaths worldwide each year, two thirds of which are attributable to primary hepatic carcinoma following HBV infection. Carriers of HBV are at increased risk of developing cirrhosis, hepatic decompensation, and hepatocellular carcinoma (HCC). The following guidelines are an update to previous AASLD guidelines and reflect new knowledge and the licensure of new antiviral agents against HBV. Recommendations in these guidelines pertain to the (1) evaluation of patients with chronic HBV infection, (2) prevention of HBV infection, (3) management of chronically infected persons, and (4) treatment of chronic hepatitis B. Management of hepatitis B in patients waiting for liver transplantation and prevention of recurrent hepatitis B post-liver transplant have been covered in a recent review article and will not be discussed in these guidelines.

Chronic hepatitis B virus infection continues to be major public health issue worldwide despite the availability of an effective vaccine and potent antiviral treatments. The risk of developing chronic HBV infection decreases with age at infection, from about 90% when infected perinatally up to 6 months of age to 20-60% between the ages of 6 months and 5 years. 25% of people who acquire HBV as children will develop primary liver cancer or cirrhosis as adults.[8] Recent global burden of disease estimates indicate a high morbidity and mortality attributable to chronic HBV, despite decreases over the past decades.[2]

In 2014, the 67th world Health Assembly of the WHO reaffirmed the resolution on viral hepatitis prevention and control highlighting the need to monitor viral hepatitis prevention, diagnosis and treatment progress. National-level prevalence estimates of chronic HBV derived by a systematic review of peer-reviewed literature reporting HBV prevalence, hepatitis B surface antigen (HBsAg) in the general population for all countries for which sero-epidemiologic data were available.[2]

Strategies for use of HB vaccine in different part of the world will differ according to endemicity of disease. In areas of high HBV endemicity (>8% HBV carriers), prevention of perinatal and early childhood transmission is of highest importance, and universal immunization of infants, starting at birth, has been advocated. Health planners worldwide are trying to determine what priority should be given to HB immunization in their country, and what strategy for vaccine delivery should be adopted.[1,2]

HEPATITIS B

- Hepatitis is a general term meaning inflammation of the liver and can be caused by a variety of different viruses such as A, B, C, D and E. Since the development of jaundice is a characteristic feature of liver disease, a correct diagnosis can only be made by testing patient's sera for the presence of specific antiviral antigen or antibodies.[3]
- Hepatitis B is a serious and common infectious disease of the liver, affecting millions of people throughout the world.[3]
- The sever pathological consequences of persistent HBV infections include the development of chronic hepatic insufficiency, cirrhosis and hepatocellular carcinoma (HCC). In addition, HBV carries can transmit the disease for many years.[12]
- More than 2000 million people alive today have been infected with HBV at some time in their lives. Of these, about 350 million remain infected chronically and become carriers of the virus. Quarters of the population live in areas where there are high levels of infection.
- Hepatitis B has also been called as type B hepatitis, serum hepatitis, homologous serum jaundice.[3]
- HBV transmitted through percutaneous or parenteral contact with infected blood, body fluids, by sexual intercourse.
- HBV is able to remain on any surface it comes into contact with for about a week, e.g., table tops, razor blades, blood stains, without losing infectivity.
- HBV does not cross the skin or the mucous membrane barrier. Some break in this barrier, which can be minimal and insignificant, is required for transmission.[3]

1.2 HEPATITIS B VIRUS

The hepatitis B virus, a hepadnavirus, is a 42 nm partially double stranded DNA virus, composed of a 27nm nucleocapsid core (HBcAg), surrounded by an outer lipoprotein coat(also called envelope) containing the surface antigen (HBsAg).[3]

The family of hepadnaviruses comprises members recovered from a variety of animal species, including the woodchuck hepatitis virus (WHV), the ground squirrel hepatitis virus (GSHV), and the duck HBV. Common feature of all of these viruses are enveloped virions containing 3 to 3.3 kb of relaxed circular, partially duplex DNA and virion-associated DNA-dependent polymerases that can repair the gap in the virion DNA template and have reverse transcriptase activities. Hepadnaviruses show narrow host ranges, growing only in species close to natural host, like gibbons, African green monkeys, rhesus monkeys, and Wolly monkeys. Hepatocyte infected in vivo by hepadnaviruses produce an excess of noninfectious viral lipoprotein particles composed of envelope protein infections display pronounced hepatotrooism. Intracellular HBV is non-scytopathic and causes little or no damage to the cell.[3]

1.3 HEPATITIS B VIRUS LIFE CYCLE

The HBV virion binds to a receptor at the surface of the hepatocyte.[14] A number of candidate receptors have been identified, including the transferring receptor, the asialoglycoprotein receptor molecule, and human liver endonexi. The mechanism of HBsAg binding to a specific receptor to enter the cells has not been established yet. Viral nucleocapsids enter the cell and reach the nucleus, where the viral genome is delivered.[12,14]

In the nucleus, second-strand DNA synthesis is completed and the gaps in both strands are repaired to yield a covalently closed circular (ccc) supercoiled DNA molecule that serves as a template for transcription of four viral RNAs that are 3.5, 2.1, and 0.7 kb long.[12-14] These transcripts are polyadenylated and transported to the cytoplasm, where they are translated into the viral nucleocapsid and precore antigen (C, pre-C) polymerase(p), envelope L(large), M (medium), S(small), and transcriptional transactivating proteins(X).[12-14] The envelope protein inserts themselves as integral membrane proteins into the lipid membrane of the endoplastic reticulum(ER).[3]

The 3.5 kb species, spanning the entire genome and termed pregenomic RNA (pgRNA), is packaged together with HBV polymerase and a protein kinase into core particles where it serves as a template for reverse transcription of negative-strand DNA. The RNA to DNA conversion takes place inside the particles. The new, mature, viral nucleocapsids can the follow two different intracellular pathways, one of which leads to the formation and secretion of new virions, whereas the other leads to amplification of the viral genome inside the cell nucleus.[3]

In the virion assembly pathway, the nucleocapsids reach the ER, where they associated with the envelope proteins and bud into the lumen of the ER, from which they are secreted via the Golgi apparatus out of the cell. In the genome amplification pathway, the nucleocapsids deliver their genome to amplify the internuclear pool of covalently closed circular DNA (cccDNA). The precore polypeptide is transported into the ER lumen, where its amino- and carboxy-termini are trimmed and the resultant protein is secreted as precore antigen (eAg). The X protein contributes to the efficiency of HBV replication by interacting with different transcription

factors, and is capable of stimulating both cell proliferation and cell death. The HBV polymerase is a multifunctional enzyme. The products of the P gene are involved in multiple functions of the viral life cycle, including a priming activity to initiate minus-strand DNA synthesis, a polymerase activity, which synthesizes DNA by using either RNA or DNA templates, a nucleus activity which degrades the RNA strand of RNA-DNA hybrids, and the packaging of the RNA pregenome into nucleocapsides[3].

MODE OF TRANSMISSION

Currently, there are four recognized modes of transmission:

1. From mother to child at birth (perinatal).
2. By contact with an infected person (horizontal).
3. By sexual contact.
4. By parenteral (blood-to-blood) exposure to blood or other infected fluids.

RISK GROUPS

Here is a list of groups of people who are at risk of contracting HBV:

- Infants born to infected mothers.
- Young children in day-care or residential settings with other children in endemic areas.
- Sexual/household contacts of infected persons.
- Health care workers.
- Patients and employees in haemodialysis centers.
- Injection drug users sharing unsterile needles.
- People sharing unsterile medical or dental equipment.
- People providing or receiving acupuncture and/or tattooing with unsterile medical devices.
- Person living in regions or travelling to regions with endemic hepatitis B.
- Sexually active heterosexuals.
- Sex partners of HBsAg positive persons.
- Persons seeking evaluation or treatment for a sexually transmitted disease.
- Men who have sex with men.
- Percutaneous or mucosal exposure to blood.
- Healthcare and public safety workers with risk for exposure to blood or blood-contaminated body fluids.
- Persons with end-stage renal disease.
- Persons with diabetes mellitus.
- Other groups.
- International travelers to regions with high or intermediate levels (HBsAg prevalence of 2% or higher) of endemic HBV infection.
- Persons with HIV infection.

CLINICAL PRESENTATION

- The clinical course of acute hepatitis B is indistinguishable from that of other types of acute viral hepatitis. The incubation period ranges from 45 to 160 days (average, 120days). Clinical signs and symptoms occur more often in adults than in infants or children, who usually have an asymptomatic acute course. However, approximately 50% of adults who have acute infections are asymptomatic.
- The preicteric, or prodromal phase from initial symptoms to onset of jaundice usually lasts from 3 to l0 days. It is nonspecific and is characterized by insidious onset of malaise, anorexia, nausea, vomiting, right upper quadrant abdominal pain, fever, headache, myalgia, skin rashes, arthralgia and arthritis, and dark urine, beginning 1 to 2 days before the onset of jaundice. The icteric phase is variable but usually lasts from l to 3 weeks and is characterized by jaundice, light or gray stools, sconvalescence, malaise and fatigue may persist for weeks or months, while jaundice, anorexia, and other symptoms disappear.[4]

Hepatitis B Clinical Features:

- Incubation period 45-160 days (average 120 days)
- Nonspecific prodrome of malaise, fever, headache, myalgia
- Illness not specific for hepatitis B
- At least 50% of infections

- Most acute HBV infections in adults result in complete recovery with elimination of HBsAg from the blood and the production of anti-HBs, creating immunity to future infection. More than one group of lymph nodes (other than in the groin) for over three to six months[4].

COMPLICATIONS

While most acute HBV infections in adults result in complete recovery, fulminant hepatitis occurs in about 1% to 2% of acutely infected persons. About 200 to 300 Americans die of fulminant disease each year (case-fatality rate 63% to 93%). Although the consequences of acute HBV infection can be severe, most of the serious com plications associated with HBV infection is due to chronic infection.[4]

Hepatitis B Complications
- Fulminant hepatitis
- Hospitalization
- Cirrhosis
- Hepatocellular carcinoma
- Death

Chronic Hepatitis B Virus Infection
- Responsible for most mortality
- Overall risk 5% among adults
- Higher risk with early infection
- Often asymptomatic

OBJECTIVE

To assess the level of knowledge and awareness about Hepatitis B infection among students in Bharathi college of pharmacy.

ETHICAL CLEARENCE

Ethical clearance for the prospective study was obtained from Institutional Ethical Committee (IEC), Bharathi College of Pharmacy, Bharathinagara.

METHODOLOGY

Knowledge assessment on Hepatitis B Infection among Bharathi College of Pharmacy Students, a survey based prospective study was conducted at Bharathi College of Pharmacy, Bharathinagar [D Pharm, B Pharm, Pharm D, M Pharm]. Study approval was obtained from Principal of Bharathi College of Pharmacy and a verbal consent form the study population.

SOURCE OF DATA

Information was collected from the participants in their leisure time using a pre-designed questionnaire. The questionnaire was based on studies reported[35,36]. Totally the questionnaire had 42 questions with 5 sections, and each section focused on different aspects of hepatitis B infection:1) knowledge about route of transmission,2) Knowledge about mode of transmission,3) Knowledge about signs and symptoms 4) knowledge about sequel and prevention, and 5) knowledge about treatment. The participants present on the day of data collection will be included in study. All the subjects were explained about the study. The study investigator explained the queries raised by participants after collection of data.

STATISTICAL ANALYSIS

Collected information was analysed using Microsoft Office (MS-Word and Excel) 2010. Descriptive data analysis has been performed in the form of percentage of demographic variables and related issues/queries were shown as various tables and graphs to compare the difference between the groups for better understanding the data. For the analysis of the results, simple percentage calculations were used to arrive at a conclusion of our study. ANOVA test was done to measure significant difference between the groups.

RESULT

SOCIO-DEMOGRAPHIC DETAILS OF THE PARTICIPANTS

Totally 333 subjects participated in the study. All of them were students of Bharathi College of Pharmacy. Among the 333 students, 85 were D Pharm students among them 22 male and 63 female (25.88% male and 74.11% female), 106 were B Pharm students among them 43 male and 63 female (40.56% male and 59.43% female), 124 were Pharm D students among them 53 male and 71 female (42.74% male and 57.25% female) and 18 were M Pharm students among them 9 male and 9 femalestudents (50.00% male and 50.00% female) students (Table-1).

Table. 1: Distribution of course wise responders by sex.

RESPONDERS	TOTAL NO.	GENDER	NO.	%
D PHARM	85	MALE	22	25.88
		FEMALE	63	74.11
B PHARM	106	MALE	43	40.56
		FEMALE	63	59.43
PHARM D	124	MALE	53	42.74
		FEMALE	71	57.25
M PHARM	18	MALE	9	50.00
		FEMALE	9	50.00

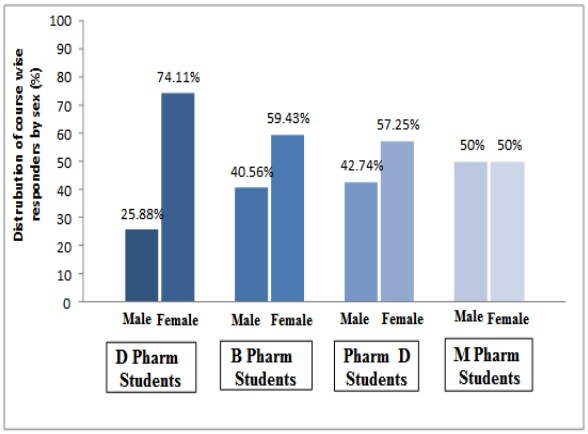

Figure 1: Distribution of course wise responders by sex.

5.2 KNOWLEDGE OF HEPATITIS B ABOUT ROUTE OF TRANSMISSION

In our study almost all the responders had heard correct knowledge about route of transmission of Hepatitis B. Generally we know the Hepatitis B is caused by a virus but it is not spread through mosquitoes, close person contact such as kissing or talking with Hepatitis B patients. Hepatitis B can spread from one person to another in the family. Unsafe sex is the one of major cause for Hepatitis B infection. Infected blood transfusion and contaminated needles, unsterilized needles, syringes and surgical instruments as the most important route of HBV transmission. HBV also transmit through sharing toothbrush but sharing towels, unbroken skin contact don't transmit Hepatitis B (Table 2).

Table. 2: Distribution of sample by correct knowledge about route of transmission.

Questionnaries	D Pharm correct response (in %)		B Pharm correct response (in %)		Pharm D correct response (in %)		M Pharm correct response (in %)	
ROUTE OF TRANSMISSION	No.	%	No.	%	No.	%	No.	%
1. Hepatitis B is caused by a virus	85	100	102	96.22	123	99.19	18	100
2. Hepatitis B is spread by a mosquitoes	85	100	102	95.22	123	99.19	18	100
3. Hepatitis B can be spread through close person contact such as kissing or talking.	60	70.50	93	91.13	120	96.77	14	77.77
4. Hepatitis B is spread through the air in an enclosed environment.	77	90.59	98	84.66	105	92.45	14	77.77
5. Hepatitis B can spread from one person to another in the family.	71	83.52	102	78.23	97	96.22	15	83.36
6. Can Hepatitis B be transmitted by unsafe sex?	76	89.51	95	82.25	102	89.62	14	77.77
7. Can Hepatitis B be transmitted by unsterilized needles, syringes, surgical instruments?	75	88.23	99	88.77	110	93.39	18	100
8. Whether infected Blood transfusion transmits Hepatitis B?	75	88.2	99	96.77	120	93.39	17	94.45
9. Whether transmitted through sharing toothbrush?	65	76.45	89	89.52	111	83.96	14	77.77
10. Whether transmitted through sharing towels?	68	80	92	89.52	111	86.79	14	77.77
11. Can HBV be transmitted from mother to child?	68	80	92	87.95	109	86.79	14	77.77
12. Can HBV transmitted through skin contact?	62	72.95	83	89.55	115	92.74	15	83.35

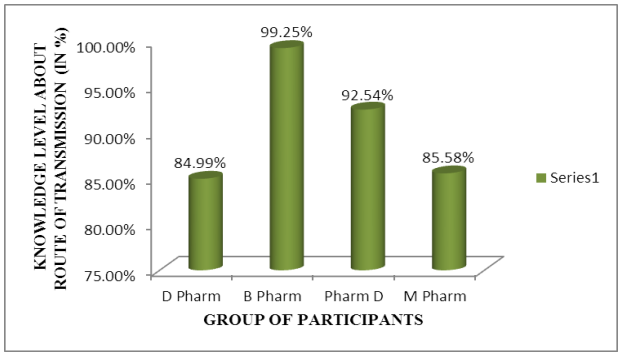

Figure. 2: Over all knowledge level about route of transmission.

MODE OF TRANSMISSIONS

HBV is more easily transmitted than AIDS (D Pharm 67.05%, B Pharm 64.54%, Pharm D 71.77%, and M Pharm 66.66%). Hepatitis B doesn't spread by eating food prepared by an infected person but it can be spread by eating food that has pre-chewed by infected persons (D Pharm 74.12%, B Pharm 77.35%, Pharm D 71.77%, and M Pharm 55.55%). Hepatitis B doesn't spread by being coughed on by an infected person, holding hands with an infected person. Immune persons cannot catch it again. HBV can spread through colonoscope or endoscope tools. HBV can't transfer through mother's

milk to the infants(D Pharm 76.47%, B Pharm 81.13%,Pharm D 74.19%, M Pharm 83.33%)(Table 3).

Table. 3: Distribution of sample by correct knowledge about mode of transmission.

QUESTIONNARIES	D Pharm correct response (in %)		B Pharm correct response (in %)		Pharm D correct response (in %)		M Pharm correct response(in %)	
MODE OF TRANSMISSION	No.	%	No.	%	No.	%	No.	%
1. HBV is more easily spread from person to person than AIDS.	57	67.05	80	64.54	89	71.77	12	66.66
2. HBV carriers can easily infect others.	56	65.89	77	62.09	89	71.77	15	83.33
3. HBV can be spread by eating food prepared by an infected person.	70	82.35	95	89.63	117	94.35	17	94.45
4. HBV can be spread by eating food that has been pre-chewed by an infected person.	63	74.12	82	77.35	89	71.77	10	55.55
5. HBV can be spread by being coughed on by an infected person.	66	77.65	90	84.91	112	90.32	11	61.12
6. HBV can be spread by holding hands with an infected person.	62	72.95	98	92.46	116	93.55	18	100
7. Once you have HB you can't catch it again because you are immune.	65	76.45	93	87.73	94	75.81	13	72.23
8. HBV can be transferred through colonoscope or endoscope tools.	60	70.59	77	72.65	102	82.25	8	44.45
9. HBV can transfer through mothers milk to the infants.	65	76.47	86	81.13	92	74.19	15	83.33

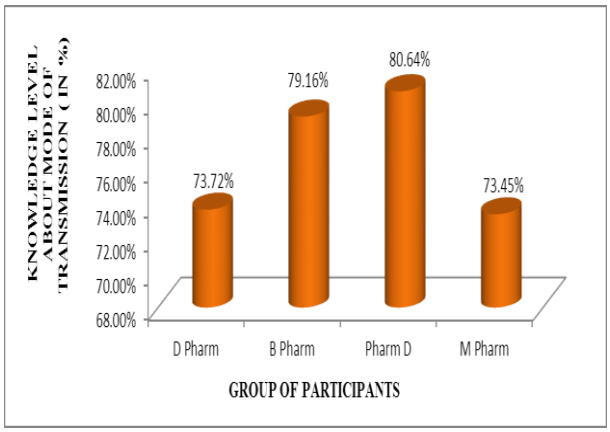

Figure. 3: Over all knowledge level about mode of transmission.

SIGNS AND SYMPTOMS

The entrance of HBV to the body symptoms are not appears soon (D Pharm 74.12%, B Pharm 79.25%, Pharm D 79.04%, M Pharm 38.89%) .. Hepatitis B vaccination leads to production of hepatitis B surface antibodies. Hence vaccinated individual presents hepatitis B antibody in their blood without being infected with the virus (D Pharm 70.58%, B Pharm 76.41%, Pharm D 85.48%, and M Pharm 55.00%) (Table-4). The Bharathi College of Pharmacy students were aware about the signs and symptoms of disease D Pharm 72.64%, B Pharm 78.06%, Pharm D 80.64%, M Pharm 50.00%).

Table. 4: Distribution of sample by correct knowledge about signs and symptoms.

QUESTIONNARIES	D Pharm correct response (in %)		B Pharm correct response (in %)		Pharm D correct response (in %)		M Pharm correct response (in %)	
SIGNS AND SYMPTOMS	No.	%	No.	%	No.	%	No.	%
1. After the entrance of HBV to the body symptoms appears soon.	63	74.12	84	79.25	98	79.04	7	38.89
2. An individual can have Hepatitis B antibody without being currently infected with the virus.	60	70.58	81	76.41	106	85.48	9	50.00
3. A person can be infected with HB and not have any symptoms of disease.	56	65.88	72	67.92	87	70.16	7	38.88
4. Always after the entrance of HBV to the body symptoms appear.	68	80	94	88.67	109	87.90	13	72.23

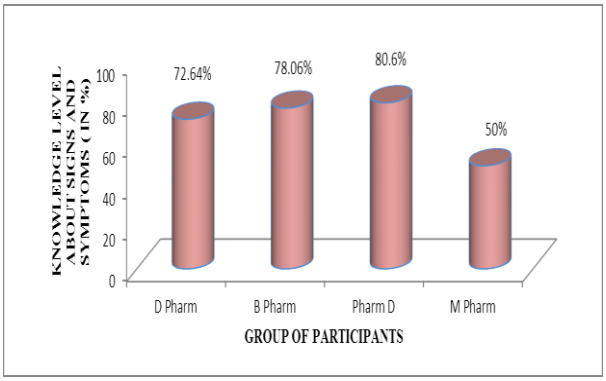

Figure. 4: Over all knowledge level about signs and symptoms.

SEQUEL AND PREVENTION

HBV is not curable but HBV vaccines prevent the infection. HBV can affect any age group, mainly affects liver, jaundice is the one of the most common symptoms of HBV infection and HBV has laboratory tests. HB transmission can be effectively preventable. Special diet is recommended for patient with HB (Table 5). The Bharathi College of Pharmacy students were aware about the sequel and prevention of disease D Pharm 77.08%, B Pharm 85.02%, Pharm D 88.27%, M Pharm 75.93%.

Table. 5: Distribution of sample by correct knowledge about sequel and prevention.

QUESTIONNARIES	D Pharmcorrectresponse (in %)		B Pharmcorrect response (in %)		Pharm D correct response (in %)		M Pharm correct response (in %)	
SEQUEL AND PREVENTION	No.	%	No.	%	No.	%	No.	%
1. People with HBV can be infected for life.	65	76.45	85	80.18	110	88.70	12	66.66
2. Do you think HBV can cause liver cancer.	60	70.55	78	73.58	99	79.83	9	50.00
3. HBV disease can cause death.	70	82.35	96	90.57	114	91.94	17	94.45
4. Is HBV curable.	65	76.45	91	85.84	100	80.64	10	55.55
5. HBV vaccine prevents the infection.	70	82.34	98	92.46	107	86.25	16	88.88
6. Have been thought about HBV and its vaccine.	65	76.47	89	83.96	111	89.51	15	83.33
7. Can HBV affect any age group.	65	76.47	88	83.01	104	83.85	15	83.33
8. Do you think about HBV can affect other organ other than liver.	63	74.12	81	76.42	100	80.64	13	72.23
9. Is the jaundice one of the common symptoms of HBV.	70	82.35	96	90.57	115	92.75	15	83.33
10. Do you think HBV has laboratory test.	67	78.82	92	86.79	120	96.78	14	77.75
11. Could we prevent HB transmission.	73	85.88	100	94.34	120	96.78	18	100
12. Is vaccination available for HB.	67	78.82	94	88.67	120	96.78	17	94.45
13. Do you think that HBV has post exposure prophylaxis.	61	71.77	87	82.08	114	91.93	11	61.12
14. People with HB infection should be restricted from working in the food industry.	57	67.05	85	80.18	96	77.41	9	50.00
15. Special diet is recommended for patient with HB.	65	76.45	92	86.79	112	90.33	14	77.75

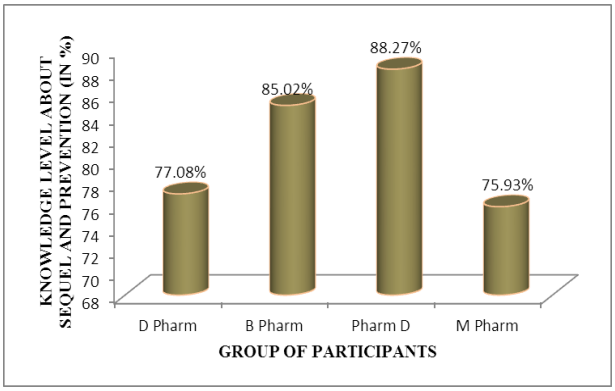

Figure. 5: Over all knowledge level about Sequel and prevention.

TREATMENT

In our study, majority of students have known about the treatment of HBV (80% of D Pharm, 90.55% of B Pharm, 96.78% of Pharm D and 100% of M Pharm) and also students well known about the peoples with Hepatitis B should restrict their alcohol intake (76.45% of D Pharm, 89.65% of B Pharm, 100% of Pharm D and 94.45% of M Pharm) (Table 6).

Table. 6: Distribution of sample by correct knowledge about treatment.

QUESTIONNARIES	D Pharm correct response (in %)		B Pharm correct response (in %)		Pharm D correct response (in %)		M Pharm correct response(in %)	
KNOWLEDGE ABOUTTREATMENT	No.	%	No.	%	No.	%	No.	%
1. There is a pharmaceutical treatment available for Hepatitis B.	68	80.00	96	90.55	120	96.78	18	100
2. People with Hepatitis B should restrict their alcohol intake.	65	76.45	95	89.65	124	100	17	94.45

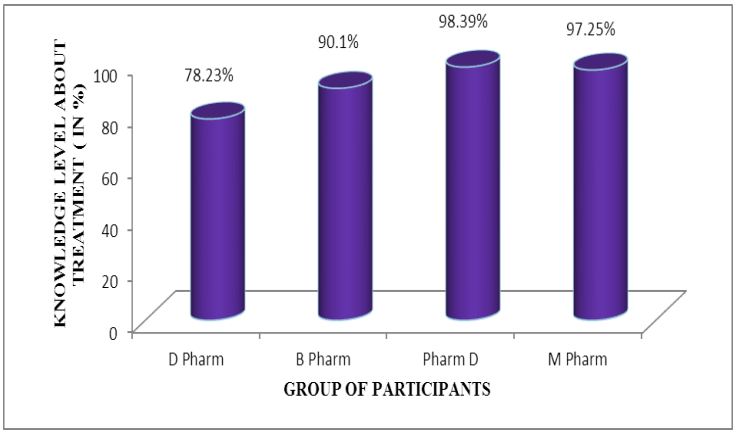

Figure. 6: Over all knowledge level about treatment.

DISTRIBUTION OF SAMPLE BY KNOWLEDGE LEVEL ABOUT HEPATITIS B

Table. 7: Distribution of sample by correct knowledge level about Hepatitis B

QUESTIONNARIES	KNOWLEDGE LEVEL OF PARTICIPANTS			
	D Pharm (in %)	B Pharm (in %)	Pharm D (in %)	M Pharm (in %)
1. Distribution of sample by correct knowledge about route of transmission.	84.99	90.25	92.54	85.58
2.Distribution of sample by correct knowledge about mode of transmission.	73.72	79.16	80.64	73.45
3. Distribution of sample by correct knowledge about signs and symptoms.	72.64	78.06	80.60	50.00
4. Distribution of sample by correct knowledge about sequel and prevention.	77.08	85.02	88.27	75.93
5. Distribution of sample by correct knowledge about treatment.	78.23	90.10	98.39	97.25

Correct Knowledge About Hbv: In our study pharm D (88.08%) students having more knowledge about Hepatitis B virus followed by B. pharm (84.51%), D. pharm (77.33%) and M. pharm (76.11%).

Table. 8: Correct knowledge about HBV.

Sl. No.	Participants	Overall Results	
		NO.	%
1	D Pharm	65.74	77.33%
2	B Pharm	90.06	84.51%
3	Pharm D	86.92	88.08%
4	M Pharm	13.76	76.11S%

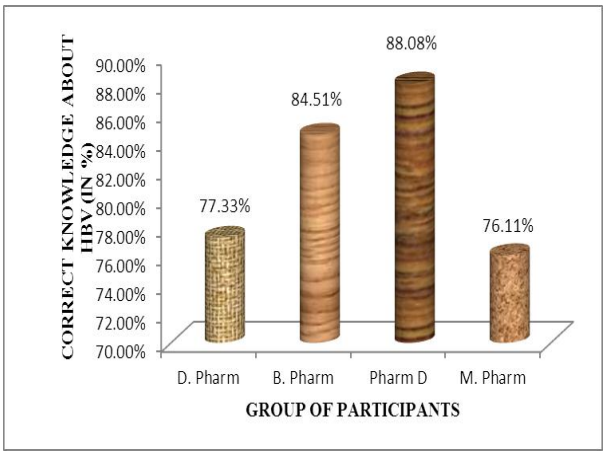

Figure. 7: Correct knowledge about HBV.

1. DISCUSSION

HBV is a major health problem globally casting an enormous burden on health care system and major source of patient's misery. Health care related transmissions have long been recognized as a source of HBV infection. Transmission of infection from patients to health care providers was common before widespread HBV vaccination of health care workers. Health care workers, especially physicians and medical students are always in direct contact with patients and are vulnerable to the acquisition of these infectious diseases. They are involved in blood transfusion, injections and surgical operations in their practices. They should be aware of the risk involved in the treatment procedures and should take appropriate precautions in dealing with patients[40, 41].Presently pharmacist playing a major role in patient care and patient's education. Individual or community is in a position to adopt a disease risk-free behavior for this disease. Importance of Hepatitis B and prevalence of Hepatitis disease, a survey of the knowledge about Hepatitis B was conducted among Pharmacy student.

In our study majority of the pharmacy students in this study well know about Hepatitis B causing by virus. Large portion of students identified Hepatitis B is not spread by mosquitoes and through close person contact such as kissing or talking. They are aware of; it doesn't spread through air in an enclosed environment. Very good number of pharmacy students identified Hepatitis B easily transmitting by use of unsterilized needles, syringes and surgical instruments. They add very good knowledge on infected blood transfusion transmits Hepatitis B. However, a relatively moderate proportion of them identified sexual contact and sharing of household tools as import routes of transmission. Many study participants agreed HBV can be transmitted from infected mother to child. Also they are well understood that HBV can't transmit through skin contact and holding hands with infected person. In this study, around half of students recognized that HBV is more easily transmitted than HIV and carriers can easily infect others. Interestingly, less portion of study participants wrongly identified feco-oral route and its attributes like eating food prepared by an infected person and cough as modes of transmission.

In our survey, we came to know that majority of the pharmacy students have very good knowledge about signs and symptoms of Hepatitis B infection. In the present study most of the participants were aware about people with HBV can be infected for life. Majority study participants also aware HBV can cause liver cancer and may lead to death. They reveal very good knowledge about availability of medications and vaccination for Hepatitis B. Also participants showed higher level aware of vaccination effectively prevents Hepatitis B infection.

2. CONCLUSIONS

All pharmacy students of Bharathi College of Pharmacy have very good knowledge about route and mode of transmission of Hepatitis B virus. Most of the students were having general knowledge about Hepatitis B virus. Students of D Pharm, B Pharm and Pharm D were having well knowledge about sign and symptoms of Hepatitis B infection. Study reveals that Pharm D students have higher level of knowledge compare to D Pharm, B Pharm, M Pharm students. Major portion of participants well aware about vaccination in the major way to prevent Hepatitis B infection. Also students are well understood about treatment of Hepatitis B infection.

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