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Original Article

Prevalence of Hepatitis B infection among the Pregnant Women of Forcibly Displaced Myanmar Nationals in a Selected Rohingya Camp

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Abstract

Background:

Hepatitis B is a viral infection that affects the liver and causes both acute and chronic diseases. It spreads through contact with the blood or other body fluids of an infected person. The best way to prevent hepatitis B is to get vaccinated. Treatment options for chronic hepatitis B include antiviral medications and liver transplantation. Hepatitis B virus can easily pass from a pregnant woman with hepatitis B to her baby at birth. In the Forcibly Displaced Myanmar National's camp, Hepatitis B is affecting more and more mothers and children day by day at an alarming rate.

Objective:

This study aimed to find out the prevalence of Hepatitis B among the pregnant women of Forcibly Displaced Myanmar National people.

Methodology:

This was a cross-sectional study conducted on pregnant women who have visited OPD of Maternal and Child Health Care Centre by Human Aid Bangladesh in Balukhali camp 9, Ukhiya, Cox's Bazar. A total of 465 subjects were included in the study. The respondents were interviewed and information was recorded in the questionnaire. The laboratory investigation was done and collected from the patient on spot from the facility. Ethical issues were maintained and the results were obtained to complete the data sheet analyzed by SPSS, Z test, t-test, Chi-Square test.

Results:

A total of 465 respondents were interviewed and tested for hepatitis B infection by HbsAg strip test by ICT method. In the study 53(11.40%) of the respondents were found positive for hepatitis B infection. Most of the respondents were illiterate 153(32.90%). The maximum respondents were in the age range of 16-20 years(61.94%). Very few respondents were known for hepatitis B infection. 24(5.1%) . Among the respondents, 21(4.52%) had a positive partner or family member. Most of the respondents 368(79.14)were not vaccinated.

Conclusion:

The prevalence of Hepatitis B Infection among Pregnant women of Forcibly Displaced Myanmar National is quite high. Lack of knowledge, poverty, lack of vaccination, and violence contributed behind the high rate of Hepatitis B Infection among them.

Key words : Hepatitis B, Pregnant, Myanmer, Rohingya

Introduction:

Hepatitis B affects approximately 296 million people, including over 6 million children under the age of 5. Hepatitis B contributes to an estimated 820,000 deaths every year. 25% of chronic hepatitis B infections progress to liver cancer.[1] The prevalence of HBV infection in the general population of Bangladesh was 4% (95% CI 3.0–5.1), which is considered as a low intermediate prevalence rate and indicated a higher prevalence rate in Bangladesh than the global prevalence rate (3.5%).[2] Among the pregnant women the rate is 0.4%.[3] On 25

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August 2017, the world witnessed a massive humanitarian crisis unfold in Rakhine State, Myanmar. Hundreds of thousands of terrorised Rohingya fled from Rakhine as they came under violent attack and villages were razed. This triggered an unprecedented exodus across the border to neighbouring Bangladesh. Within a few weeks, half a million people entered Bangladesh seeking safety and shelter.There are now 860,000 Rohingya living in refugee camps in Cox's Bazar, over half of whom are children.[4]

The Rohingya refugee crisis has made Rohingya women more vulnerable. Currently, Rohingya women make up approximately 67% of the refugee population and are victims of sexual violence and exploitation. Of the 335,670 female refugees in the population, 70,000 (20%) are estimated to be pregnant or new mothers. This pregnancy rate is much higher than that of their native Myanmar where only 4.7% of women are pregnant or new mothers.Many experts believe that the increase in pregnancy rate is a result of illiteracy,child marriage, multiple marriage and sexual violence against displaced Rohingya women.[5]

Hepatitis B is a growing infection among those pregnant women. Which is a major health risk for the entire FDMN community specially the children. Hepatitis B can be easily passed from mother to children during birth.This can happen during a vaginal delivary or a C-section.[6]

Hepatitis B infection can easily be diagonsed by HbsAg strip test. Hepatitis B surface antigen (HBsAg) is a distinctive serological marker of acute or chronic hepatitis B infection. HBsAg is the first antigen to appear following infection with HBV and is generally detected 1-10 weeks after the onset of clinical symptoms. HBsAg assays are routinely used to diagnose suspected HBV infection and monitor the status of infected individuals to determine whether the infection has resolved or the patient has become a chronic carrier of the virus. In patients that recover from HBV infection, HBsAg is undetectable 3-5 months after the onset of infection. In patients with chronic HBV infection, HBsAg remains detectable for life. Prenatal HBsAg screening has been recommended so that newborns from HBV carrier mothers may obtain prophylactic treatment. Persistence of HBsAg, without anti-HBs, with combinations of positivity of anti-HBc, HBeAg, or anti-HBe indicates infectivity and need for investigation for chronic persistent or chronic aggressive hepatitis.[6]

A recent study on the prevalence of Hepatitis B and C virus among the Rohingya refugees in Cox's Bazar has found that more than one in five Rohingya adults have hepatitis C virus (HCV) infection. The study was conducted by the National Liver Foundation of Bangladesh (NLFB). According to the study, hepatitis C was found in 26 percent females and 18 percent males, while eight percent of pregnant female refugees were found to be HCV positive. It also mentioned that HCV is18 times higher among the Rohingya refugees than Bangladeshis. NLFB conducted two studies on the prevalence of hepatitis B (HBV) and hepatitis C (HCV) among the Rohingya refugees. Apart from hepatitis C virus, hepatitis B was found in nine percent male, five percent female, and three percent pregnant female refugees. Among all age groups, HCV was found in 11 percent of refugees, while the percentage of HBV was four percent. HBV affected pregnant women unknowingly transmit the virus to their newborns, the most common mode of HBV transmission.[7] There is an immediate need for well-organised studies to assess the causes and risk for viral transmission and the capacity of health systems in the camps to deliver preventive care and treatment services.

Methodology:

The study was a descriptive type of cross sectional study. Study place was Balukhali Rohingya camp, Camp number 9, Ukhiya, Cox'sBazar. The duration of the study was 12 months, from Ist January 2022 to 31th December 2022. Study population were Pregnant Rohingya refugee women of reproductive age in Camp 9. Number of respondents were 465 . Pregnant women coming to the health centre from FDMN camp no 9 were selected according to inclusion and exclusion criteria. In each case, information about the patient was obtained after getting the consent of subject. A well-designed questionnaire was developed and used for the study. The following informations about socio-economic condition and the information about hepatitis B were taken and included in questionnaire form. Then HbAg strip test was done by ICT method and result was included in form and advices were given to the subject according to the result . Data were analyzed by using the statistical software namely SPSS (Statistical Package for Social Sciences)-version 29 and then data were presented using a frequency table, graph and chart.

Results:

Table-I: Distribution of the respondent by occupation and hepatitis B Infection status. (n=465)

Occupation	HbsAg status		Total	P- value
	Positive	Negative		
	No (%)	No (%)	No (%)	
Housewife	49(10.54)	354(76.13)	403(86.67)	0.03
Worker	2(0.43)	19(4.10)	21(4.53)	
Shopkeeper	0(0.00)	5(1.08)	5(1.08)	
Tailor	1(0.22)	7(1.51)	8(1.73)	
Day labour	0(0.00)	2(0.43)	2(0.43)	
Hawkers	0(0.00)	6(1.29)	6(1.29)	
Others	1(0.22)	3(0.65)	4(0.87)	

Table-I: shows that most of the respondents were housewife 403(86.67%). And then 21(4.53%) were workers, 8 (1.73%) were tailors, 6 (1.29%) were hawkers, 5 (1.08%) were shopkeepers, 2(0.43%) were day labor and 4 (0.87%) were in other occupation. Among all of them HbsAg positive was 53. Among which 49 (10.54%) were housewife , 2 (0.43%) were worker, 1 (0.22%) were tailor and another 1 (0.22%) were in other profession. The difference was statistically significant (p<.05).

Table-II: Distribution of the respondents by age and HbsAg status. (n=465)

Age in years	HbsAg status		Total	P- value
	Positive	Negative		
	No (%)	No (%)	No (%)	
11-15	7(1.51)	46(9.89)	53(11.78)	0.1
16-20	24(5.16)	264(56.77)	288(61.94)	
21-25	13(2.80)	56(12.04)	69(14.84)	
26-30	6(1.29)	36(7.74)	42(9.03)	
31-35	3(0.65)	8(1.72)	11(2.37)	
36-40	0(0.00)	2(0.43)	2(0.43)	

Table-II shows the distribution of respondents by age and HbsAg test status. It shows that most of the respondents were at the age of 16-20 years (61.94%). Total number of positive HbsAg cases were also in the age range of 16-20 years of age, 24(5.16%) of total respondents. Next positive cases is in 21-25 years of age range 13(2.80%). Next is 11-15 (1.51%), 26-30(1.29%) and 31-35(0.65%). The difference was statistically insignificant (p>0.5).

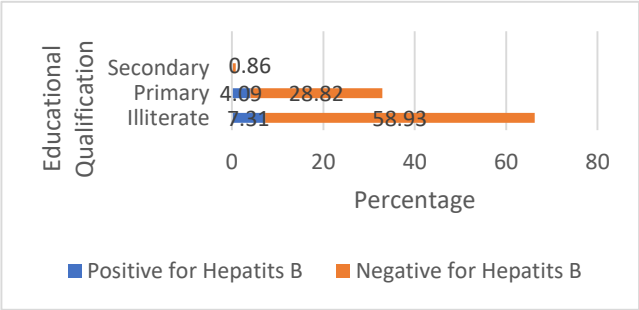

Figure- I: Distribution of Hepatitis B infection status in relation with educational qualification of the subjects. (n=465)

Figure-I: shows that most of the respondents were illiterate, around 66.24%.Then 32.90% of respondents went to primary school and only 0.86% of the respondents went to high school. HbsAg positive status was also high among the illiterate respondent, which was about 7.31% of the total respondents. Among upto primary going respondents it was 4.09% and among upto secondary school going respondents, no respondents were found positive. The difference was statistically significant(p<.05).

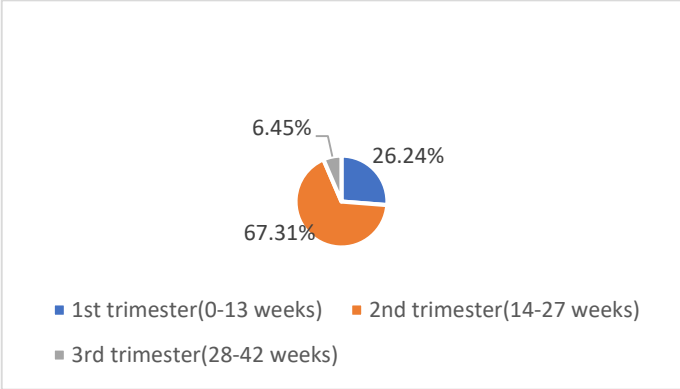

Figure-II: Distribution of respondents according to their pregnancy trimester. n=465

Figure-II shows that most of the respondents were in second trimster, about 67.31% and 26.24% of respondents were in the first trimester. In third trimester were 6.45% of respondents.

Table-III: Distribution of respondents by HbsAg test status and positive hepatitis B family member. n(465)

Hepatitis B Positive partner or Family member	HbsAg status		Total	P -value
	Positive	Negative		
	No (%)	No (%)	No (%)	
Positive	19(4.09)	2(0.43)	21(4.52)	0.01
Negative	34(7.31)	410(88.17)	444(95.48)	

Table-III shows that 21(4.52%) of respondents had positive hepatitis B partners or family members. Among them, 19(4.09%) respondents were positive for HbsAg test. Another 444(95.48%) had a negative hepatitis B partner. Most of them had actually not been tested before. Among those 444 respondents, 34(7.31%) were positive. So having a positive family member or partner make 90.48% cases positive. The difference was statistically significant (p<.05)

Table-IV: Distribution of the respondents by Hepatitis B Vaccination status and HbsAg status. (n=465)

Hepatitis B Vaccination status	HbsAg status		Total	P value
	Positive No (%)	Negative No (%)		
Vaccinated	0(0.00)	43(9.25)	43(9.25)	0.01
Non Vaccinated	52(11.18)	316(67.96)	368(79.14)	
Partially vaccinated	1(0.22)	53(11.40)	54(11.62)	

Table-IV shows that 368(79.14%) were non-vaccinated and 54(11.62%) were partially vaccinated. Only 43(9.25%) were fully vaccinated against hepatitis B, and all of them were negative in HbsAg test. The resources for the vaccination FDMN people is very low.

So the vaccination percentage is very less**.** The difference was statistically significant as p<0.5.

Discussion:

It has been observed that among the FDMN pregnant women, the rate of hepatitis B is very high. About 53(11.40%) from 465 respondents were positive for the HbsAg ICT strip test. The rate is very high than the neighboring countries and Bangladesh. In Bangladesh, the rate is 4% for the general population and 0.4% for the pregnant women.[8] For Myanmar nationals the rate is 3.8% for the general population and for pregnant women it is 3.2%.[9]

Among the respondents most of the subjects were in the age range of 16-20(61.94%) followed by 21-25(14.84%), 11-15(11.78%), 26-30(9.03%), 32-35(2.37%) and 36-40(0.43%) . It was evident that in the FDMN community becoming pregnant for a female in a very early age is very common.The total number of positive HbsAg cases was also in the age range of 16-20 years of age, which is about 5.16% of total respondents. The next positive cases among 21-25 years of age range, about 2.80% of total respondents. next is 11-15 (1.51%), 26-30(1.29%), and 31-35(0.65%). Early marriage and early pregnancy rate is very high among the FDMN girls.[10] It was shown in the study that around 66.24% respondents were illiterate. Around 32.90% of respondents went to primary school and only 0.86% of the respondents went to high school. HbsAg positive status were also high among the illiterate respondent , which is about 7.31% of the total respondents. among upto primary going it was 4.09% and among upto secondary school going respondents no respondents were found positive. The illiteracy rate in FDMN people especially among girls is around 75% and for Bangladeshi host population it is around 40%.[11] The study shows that most of the respondents were housewives 403(86.67%). Then 21(4.53%)were workers, 8(1.73%) were tailor, 6(1.29%) were hawkers, 5(1.08%) were shopkeepers, 2(0.43%) were day labour and 4 (0.87%) were in other occupation. Among all of them, HbsAg positive was 53. Among those 49(10.54%) were housewife, 2(0.43%) were worker, 1(0.22%) were tailor and another 1(0.22%) were in other profession. For Bangladeshi the occupation for the pregnant female is mostly housewives but the rate is less than the FDMN mothers. [12] Most of the respondents have 2 children about 39.78%. Then 33.12% of respondents have 1 child 21.72% have 3 ,3.44% have 4 and 1.94% have 5 children. Hepatitis B is positive among those who have 2 or 3 children, which is 3.87% of total respondents.2.80% of total respondents were positive with one child, with 4 it was 0.66% and with 5 children it was 0.22% of total respondents. In Bangladesh fertility rate is also mostly 2 according to a 2020 study.[13] The respondent's family income was around 5001 BDT to 10000 BDT 306(67.81%). Then (0-5000) BDT income were in 124(26.67%) family and 10001-15000 BDT income were in 32(6.88%) family. Lastly 15001-20000 BDT income were in 3(0.65%) respondents family. FDMN people actually have a very little income source. They maily depends on relief by different international and local organizations. Among the 5001-10000 BDT incomed family HbsAg positive rate were more, around 35(7.53%) of total respondents. Then 14(3.01%) respondents were positive for HbsAg and were in 0-5000 BDT incomed family and 4(0.86%) were in 10001-15000 BDT range. Among Bangladeshi average family income is 26000 in 2023 which is quite more than FDMN people.[14] Among the respondents, 24(5.16%) were previously known cases of hepatitis B . They all became positive on HbsAg test. Among the others 441(94.84%) respondents, 29(6.24%) respondents were positive. So it can be told that most of the cases were unknown before. Most of the respondents were not hospitalized before 414(89.03%) , only 51(10.96%) were hospitalized before. In the study among the participants hospitalized 15(3.22%) were positive for hepatitis B, and 38(9.18%) of non hospitalized person were positive. Percentage of Hepatitis B infection among hospitalized people is more than the non-hospitalized. The study shows that among the respondents 36(7.74%) had major operations before. Among them 8 were positive for hepatitis. which is 1.72% of total respondents. In the study 429(92.26%) respondents had not any major operation before, among them 45(9.68%) were positive for HbsAg. So it can be said that those who had an operation before have more positive rate of hepatitis B Than who haven't. Globally only 1.4 per 10000 cases become positive for hepatitis B after operation.[15] Among the respondents most of the respondents haven't taken any blood or blood product .which is 423(90.97%) . Among them 7(1.51%) were positive for hepatitis B. It is 10.40% of respondents who haven't taken any blood product. And 42(9.04%) respondents took a blood or blood product before. Among them 7(1.51% of total respondents) were positive, which is 16.67% of those who took blood or blood product before.The global rate of hepatitis B after getting a blood transfusion is 0.29% only.[16] Among the respondents 21(4.52%) have positive hepatitis B partner or family members. Among them 19 respondents were positive for

HbsAg test, which is 4.09% of total population and 90.48% of those who have positive family member or partner. Simultaneously 444(95.48%) had negative hepatitis B partner.Most of them actually not been tested before. Among those 444 respondents, 34(7.31% of total) were positive. Which is 7.66% of those respondents who had not any positive family member. So having positive family member or partner make 90.48% of cases positive.The global rate for women affected by hepatitis B exposure by family member or partner is 32.7%.[17] The study shows that 368(79.14%) were non vaccinated and 54(11.62%) were partially vaccinated. And 43(9.25%) were fully vaccinated against hepatitis B , And all of them were negative in HbsAg test. The resources for vaccination FDMN peop[le is very low . So vaccination percentage is very less compare to Bangladesh. The Bangladeshi rate is 66.63%.[18] In Bangladesh, Hepatitis B Is 4.00%[19] and among the pregnant mother, it is 0.4% and in Myanmar it is 3.8% and 1.3% accordingly.[20] Compared to Bangladesh and Myanmar Hepatitis B prevalence 11.40% among the FDMN pregnant women is very alarming and needs immediate action.

Conclusion:

Data from the present study shows that the prevalence of Hepatitis B infection among FDMN pregnant women is very high. Early marriage, unsafe blood transfusion, having a partner or family member hepatitis B positive, illiteracy, poor economic condition, and poor vaccination status are the main reason behind this high prevalence. This high prevalence of Hepatitis B among the pregnant mothers of FDMN community should be taken as an utmost public health concern for both FDMN community and host population. Necessary steps should be taken to resolve the situation. Vaccination against Hepatitis B should be given priority for FDMN community. Health education and education about hepatitis and other communicable diseases should be given to FDMN people. Further study with a large number of subjects and more time should be conducted. The study should be conducted all the areas of Rohingya camps to find out the whole population status properly.

References:

1. Custer B, Sullivan SD, Hazlet TK, Iloeje U, Veenstra DL, Kowdley KV . Global epidemiology of hepatitis B virus . *Journal of Clinical Gastroenterology* 2004; **38** (10 Suppl 3): 158–68.
2. Vos, Theo; et al. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet 2016; 388 (10053): 1545–1602.
3. Uz-Zaman, M et al. Epidemiology of hepatitis B virus infection in Bangladesh: prevalence among general population, risk groups and genotype distribution. Genes 2018; 9: 541.
4. Hutchinson, Susan. Gendered insecurity in the Rohingya crisis. Australian Journal of International Affairs 2018; 72 (1):19.
5. Rahman MM, Dutta MJ. The United Nations (UN) Card, Identity, and Negotiations of Health among Rohingya Refugees. International Journal of Environmental Research and Public Health 2023 Feb;20(4):3385.
6. Mazhar MKA, Finger F, Evers ES, Kuehne A, Ivey M, Yesurajan F, Shirin T, Ajim N, Kabir A, Musto J, White K, Baidjoe A, le Polain de Waroux O. An outbreak of acute jaundice syndrome (AJS) among the Rohingya refugees in Cox's Bazar, Bangladesh: Findings from enhanced epidemiological surveillance. PLoS One 2021 Apr 29;16(4):e0250505.
7. Ali M, Rahman MA, Njuguna H, et al. High Prevalence of Hepatitis B and C Virus Infections Among Rohingya Refugees in Bangladesh: A Growing Concern for the Refugees and the Host Communities. Clinical Liver Disease 2022 Jan;19(1):1-6.
8. Aung T. Status report of the blood transfusion services in Myanmar. Asian Journal of Transfusion Science 2009 Jan;3(1):22-25.
9. Nasar S, Nadim A, Raz S, et al. Livelihood Challenges of Single Female Household Heads in the Rohingya and Host Communities in Cox's Bazar, Bangladesh during the COVID-19 Pandemic. Research Square 2022:3-4.
10. Khan MN, Harris ML, Huda MN, Loxton D. A population-level data linkage study to explore the association between health facility level factors and unintended pregnancy in Bangladesh. Scientific Reports 2022 Sep;12(1):15165.
11. Kundu S, Rahman MA, Kabir H. Diabetes, Hypertension, and Comorbidity among Bangladeshi Adults: Associated Factors and Socio-Economic Inequalities. Journal of Cardiovascular Development and Disease 2022 Dec;10(1):7.

12 Rahman MA, Kundu S. Prevalence and determinants of contraceptive method use among Bangladeshi women of reproductive age: a multilevel multinomial analysis. BMC Public Health 2022 Dec;22(1):2357.

13 Rahman S, Munam AM, Hossain A, Hossain ASMD, Bhuiya RA. Socio-economic factors affecting the academic performance of private university students in Bangladesh: a cross-sectional bivariate and multivariate analysis. SN Social Sciences 2023 ;3(2):26.

14 Sheikh N, Sarker AR, Sultana M. Disease-specific distress healthcare financing and catastrophic out-of-pocket expenditure for hospitalization in Bangladesh. International Journal for Equity in Health 2022 Aug;21(1):114.

15 Tian Y, Fan Z, Xu L. CRISPR/Cas13a-assisted rapid and portable HBV DNA detection for low-level viremia patients. Emerging Microbes & Infections 2023 Dec;12(1):e2177088.

16 Farrugia A. The Evolution of the Safety of Plasma Products from Pathogen Transmission-A Continuing Narrative. Pathogens (Basel, Switzerland) 2023 Feb;12(2):318.

17 Shen C, Jiang X, Li M, Luo Y. Hepatitis Virus and Hepatocellular Carcinoma: Recent Advances. Cancers 2023 Jan;15(2):533.

18 Hosen I, Moonajilin MS, Hussain N. Predictive factors of vaccination status, knowledge, attitudes, and practice towards prevention of hepatitis B infection among Bangladeshi people: A cross-sectional study. Health Science Reports 2023 Jan;6(1):e1000.

19 Kayesh MEH, Kohara M, Tsukiyama-Kohara K. Epidemiology and Risk Factors for Acute Viral Hepatitis in Bangladesh: An Overview. Microorganisms 2022 Nov;10(11):2266.

20 Lwin KS, Ghaznavi C, Win KL, et al. Myanmar's coup risks a flood of vaccine-preventable disease. Journal of Global Health 2022 Sep;12:03060.