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ORIGINAL ARTICLE

Seroprevalence of HBV, HCV and HIV by Screening Tests among Multi Drug Resistant TB Patients

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Abstract:

Background: *Hepatitis B virus (HBV) and MDR TB represents major public health problems. There is currently little data on HBV infection among MDR-TB patients with or without Human immunodeficiency virus (HIV) and Hepatitis C virus (HCV).*

Objectives: *1. To assess HBV, HCV and HIV prevalence among MDR TB patients. 2. To reduce MDR-TB/HIV, MDR-TB/HBV N MDR-TB/HCV associated morbidity and mortality.*

Study Design:*From January 2012 to June 2013 a cross sectional study was conducted among MDR patients admitted in NIDCH Mohakhali, Dhaka, Bangladesh. The participants were tested for serological markers of HBV surface antigen, HIV and HCV antibodies. HBV positive samples were detected by ELISA method.*

Results:*106 patients of MDR - TB were agreed to participate in the study.MDR – TB patients were between 14-70 years and Male 59(55.64%)and Female 47(44.34%) . Among 106 patients only 3(2.83%) were HBsAg positive and 103 patients (97.17%) were HBsAg negative but all patients were HIV and HCV negative. A higher rate of HBV infection was found among MDR – TB patients 3 (2.83%). A multivariate analysis of risk factors shows that age group 21 to 30 years is more affected.47(44.34%) in MDR-TB. HBsAg positive total 3 samples were tested by ELISA method.*

Conclusion: *HBV infection is common among MDR-TB patients. In this study there was no patient with MDR-TB/HIV and MDR-TB/HCV. But to reduce the risk of morbidity and mortality of patients detected with HBV and TB/HIV special attention is to be addressed.*

Key words: *MDR-TB , HBV screening , HIV.*

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Introduction:

Multi drug resistant TB (MDR-TB) is resistant to at least two most potent drugs against TB, isoniazide and rifampicin.[1] there are no national data on TB drug resistant in Bangladesh. Although the rates of MDR-TB in Bangladesh do not appear to be high the absolute number of MDR-TB cases is high considering the high TB burden as per WHO report 2012 . MDR –TB rate is estimated 1.8 and 14% among new and

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previously treated TB cases respectively . MDR-TB prevalence among new cases of 1% translates into approximate 3000 new cases per year .[1,2]

Data are available for 135 countries worldwide (70% of WHO's 194 member states) and by the end of 2012 will be available from all 36 countries with a high burden of MDR-TB.

Hepatitis- B virus (HBV) infection is one of the most common infectious disease with an estimated 2 billion people infected globally. Over 350 million people are chronically infected and over 1-2 million deaths per year .[3] The HBV prevalence in Bangladesh is 2.3% to 9.7% with an approximate carrier pool of 10 million. HBV and TB represent major health problems.

HBV is an important cause of liver disease in Bangladesh and is responsible for 19 to 35% of acute viral hepatitis. 35.7% of acute liver failure , 33.3to 40.5 % of chronic hepatitis and 46.8% of hepatocellular carcinoma.[4-6]

Human immunodeficiency virus (HIV) prevalence among the most vulnerable populations is still below 1% (.09%). However, injecting drug uses (IDUs) in central Bangladesh have for exceed the 1% threshold , achieving the status of concentrated 'epidemic' . National survey data indicates that HIV incidence among IDUs , in Dhaka (central Bangladesh) jumped from 1.4% in 2000 to 7% in 2006 with prevalence rate as high as 10.8% in one 'hotspot' location in Dhaka.

With rapid spread of HIV amongst IDUs and continued risky behavior patterns amongst highrisk groups, Bangladesh is not far from a wide spread and devastating epidemic.[7-9] Half of all individuals infected with HIV are also infected with TB. HIV and co infection is also common. Since these disease share similar potential routs of transmission.

Hepatitis is c iis found worldwide with same countries having chronic infection route as 5% and above. Every year 3-4 million people are infected with Hepatitis C virus . About 150 million people are chronically infected and at risk of developing liver cirrhosis and liver cancer . More than 350,000 people die from hepatitis C related liver disease every year .

Tuberculosis and Hepatitis C virus (HCV) infection have emerged as major public health problem.

Several Serological tests can be used to evaluate HBV infection.[10] HBV surface antigen (HBsAg) can be identified in a patient serum . 30-60 days after exposure to the virus and persists for a variable periods of time . Chronic HBV infection are at increased risk for developing hepatotoxicity . Which is common side effects of anti TB drugs and highly active anti-viral therapy TB and HIV-1 infected patients respectively . In our study we examined seroprevalence of HBV serological matters in MDR TB patients with or without HIV and HCV co infection who attended in NIDCH.

Patients and Methods:

From January 2012 to June 2013 a cross sectional study was conducted among MDR TB patients admitted in NIDCH. 106 MDR TB patients had been tested for HBV surface antigen, HIV antibodies and HCV antibodies . HBV positive samples were repeated by ELISA method.

A questionnaire was developed by using selected variables according to the objective. Laboratory findings were collected from the 5ml clotted blood and 3ml of EDTA blood were taken from each patients after fulfilling data sheet.

Data were analyzed using the statistical package for the social science(SPSS) for windows version 12. Proportion(%) for categorical data and standard deviations(SD) for continuous data were used to described the HBV serological status.

Results and Discussion:

106 MDR TB patients has been serologically tested for HBV, HIV and HCV infection. 106 MDR TB patients were agreed to participate in this study . Among the 106 MDR TB patients Male 59 (55.66%) and female 47 (44.34%) mean 31.2 SD 13.10 . The age range of these patients were between 14-70 years. The distribution of age 11-20= 16(15.09%) , 21-30= 54 (50.91%) , 31-40=14 (13.20%), 41-50=11(10.3%) , 51-60= 7 (6.6%) and >60=4(3.7%).

3(2.8%) patients of MDR TB were found infected with HBV. A multivariate analysis of risk factors

shows 21-30 years are more effected i.e. 54(50.91%). HBsAg positive 3 patients and negative 103 patients .HBsAg positive samples were tested by ELISA method. The results show a high prevalence of HBV infection among MDR TB patients without HIV and HCV co infection (P=<0.05) which is significant.

HIV antibody screening test shows negative in 106 MDR patients through study of VCT center shows 13 patients were MDR-TB/HIV among 1564 MDR-TB patients.

Table-I

Distribution of study population according to age.

Age (in year)	Frequency	Percent
11-20	16	15.09
21-30	54	50.94
31-40	14	13.21
41-50	11	10.38
51-60	07	6.61
61-70	04	3.77
Total	106	100

Mean ± SD(Range), 31.22 ± 13.10

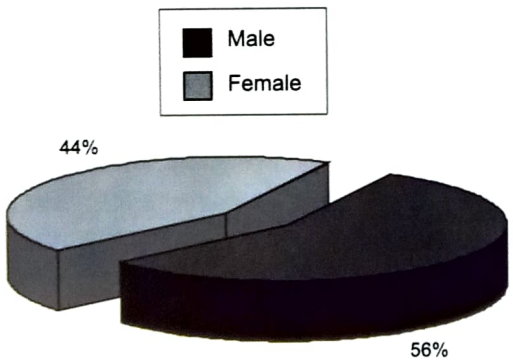

Fig.-1: *Pie chart of study population according to sex distribution*

Table-II

Distribution of HBsAg positivity among MDR-TB patient

HBsAg	Frequency	Percent
Positive	03	2.83
Negative	103	97.17
Total	106	100

Table 2 shows the distribution of HBsAg positivity. Among 106 cases HBsAg positive are 03 (2.83%) cases &HBsAg negative are 103 (97.17%) cases.

Conclusion:

Reactivation of TB and other opportunistic infections need to be considered before initiation of potentially immunosuppressive treatment. HBV infection is extra burden in MDR – TB patients . In this study though none was found MDR-TB/HIV and MDR/HCV but it cannot be ignored. HIV and HCV infections are also risk. To reduce morbidity and mortality of MDR TB patients detected with HBV special attention is to be addressed.

Achnolegement :

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