MEDICAL CHANNEL

Original Article

FREQUENCY OF HEPATITIS B, C AND D VIRAL MARKERS IN PREGNANCY AT ABDULLAH MEDICAL COMPLEX TALUKA MIROKHAN (PRIMARY CARE CENTRE)

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ABSTRACT:

Object: To prevent the chronic viral liver disease in young generation.
Study Design: This is a cross sectional study
Place and duration: This study was conducted at Abdullah Medical Complex Taluka Mirokhan, District Kamber Shahdadkot, from November 2009 to October 2010.
Method and material: In this study, 186 consecutive pregnant women attending the OPD for antenatal care were included. After detailed history and physical examination, they were screened for hepatitis B, C and D viral markers.
Results: Out of 186 pregnant female; 44 (23.7%) were found to be infected, majority of them had single viral marker i.e. Hepatitis B in 14 (7.52%) and Hepatitis C in 20 (10.80%), while 9 patients (4.85%) had two viral markers and only one patient (0.53%) had three viral markers.
Arthralgia and fibromyalgia were common symptoms, out of 186 these symptoms were present in 44 and 29 numbers of patients respectively, and among them infected patients were 34 and 21 (77.27% and 72.41%).These symptoms were more common in patients of hepatitis C viral infection. History of blood transfusion was present in 35 numbers of patients (18.81%) out of 186, out of 35 cases 19 were infected (54.28%). While history of therapeutic injections were found in 135 number of cases out of 186 (72.58%), among 135 cases only 34 were infected (25.18%). All cases had history of body piercing, among them 44 were infected.
Conclusion: In rural area, there were higher percentage (23.7%) of viral hepatitis infections in pregnant women, which can lead to chronic hepatitis and cirrhosis in their children at young ages, affecting main earning source of homes and districts.

Key words: Pregnancy, Hepatitis B and C, Vertical transmission

INTRODUCTION:

Chronic viral hepatitis is the presence of persistent (at least 6 months) necroinflammatory injury that can lead to cirrhosis. It is caused by virus (HBV, HCV and HDV) as well as autoimmune hepatitis; alcoholic and nonalcoholic steatohepatitis; certain medications, such as isoniazid and nitrofurantoin; Wilson disease; alpha$_1$-antiprotease deficiency; and rarely the celiac disease.

Worldwide there are nearly 400 million people and in the United States 1.25 million (predominantly males) are infected with hepatitis B virus.[1] An estimated 600,000 persons die each year due to the acute or chronic consequences of hepatitis B.[2] About 200 million people are infected with HCV worldwide, which covers about 3.3% of the world's population [3,4]. In the majority of cases, HCV remains undetected, due to its asymptomatic nature. Worldwide around 3-4 million are being newly diagnosed each year with HCV,[5] estimated results 366 000 deaths annually,[6] and 8000 to 1000 deaths per year in united states.[7]

In Pakistan Hepatitis B and C are most common causes of chronic liver disease. Prevalence rate of hepatitis C infection is very highly variable. Pakistan medical and research council survey shows 7.4% (12 million) of Pakistani peoples are infected with HBV and HCV.[8] Prevalence for hepatitis B virus is 2.5%, and of hepatitis C virus is 4.9% in healthy population of Pakistan.[8] In province of Sindh, prevalence of HBV and HCV is 2.5% and 5% respectively, and in Larkana (4.3%).[8] Given its large population (170 million) and intermediate to high rates of infection,[2,5] Pakistan is among the worst afflicted nations.

Both viruses are hepatotropic causing chronic hepatitis in at least 10% and 80% respectively. If left untreated 20 to 30 % will eventually develop cirrhosis with average latency of 15 to 25 years and hepatocellular carcinoma at rate of 1 to 5 per year with average latency of 20 to 30 years.[7] Hepatitis C is most common cause of chronic liver disease, cirrhosis & hepatocellalur carcinoma worldwide.[9,10] Both viruses are transmitted by, parenteral route (e.g. needle stick injury, injection drug use, and blood transfusion), sexual contact, and by vertical or Perinatal transmission (from mother to infant). In Pakistan many published studies suggested that reuse of unsterilized needles and use of excessive therapeutic injections is main risk factor for HCV infection.[11,12,13,14] Ear piercing and blood transfusions are among the leading predisposing factors for transmission of Hepatitis B & C in females.[15]

Perinatal transmission of HCV occurs at the time of birth in about 5 percent of infants born to anti-HCV positive women almost exclusively from mothers who are HCV-RNA positive [16].

Like hood of Perinatal transmission of HBV correlate with presence of HBe Antigen (Ag). In women who are seropositive for both HBsAg and HBeAg vertical transmission is approximately 90%.[7] But only 10 to 15% of Anti HBe positive mother transmit HBV infection to their offspring. In Far East and Africa, hepatitis B, a disease of the newborn and young children, is perpetuated by a cycle of maternal-neonatal spread.[7] In patients with acute hepatitis B vertical transmission occurs in up to 10% of neonates when infection occurs in the first trimester and in 80 -90% of neonates when acute infection occurs in the third trimester. In vertical transmission of HBV, cirrhosis and hepatocellular carcinoma occurs earlier.

HDV is a defective RNA virus that causes hepatitis only in association with hepatitis B infection and specifically only in the presence of HBsAg; it is cleared when the latter is cleared. Preventing hepatitis B effectively prevents hepatitis D.

It is imperative that for eradication of HBV and HCV infection in young children, women should be screened before marriage: all newborns of positive mother should be vaccinated, together with education of the public to limit injections to those, which are safe and clinically indicated and limit the transfusions and body piercing.

MATERIAL AND METHOD:

After approval of ethical committee of Abdullah Medical Complex (AMC), District Kamber Shahdadkot. All pregnant women of any gestational age, attending the AMC during the period from November 2009 to October 2010 were included in our study. After taking their written informed consent, detailed history was taken for body piercing (ear, nose or other sites), blood transfusion, therapeutic injections (more than four times in a year), surgery, tattooing and painless hemetemesis or malena. Then examination was carried out for signs of chronic liver disease (Jaundice, clubbing of nails, leuconychia, palmer erythemia , dupuytre's contraction, anemia, peripheral odema, ascitis, caput medusa, spider angioma, sparsing of hair and breast atrophy)

On the same day, blood sample was taken, for detection of AST (Aspartate Aminotransferase), ALT (Alanine Aminotransferase), total bilirubin, serum albumin level, presence of hepatitis B and hepatitis C viral markers (by card method), and complete blood count at pathology laboratory of AMC, and for confirmation of positive cases; ELISA (enzyme-linked immunosorbent assay) second generation, and polymerases chain reaction (PCR) were performed at Chandka Medical College Pathology laboratory. Hepatitis B positive cases were also subjected for detection of hepatitis D antibodies, and in positive cases Ribonucleic acid (RNA) by PCR was performed.

An ultrasound abdomen and pelvis, was performed by radiologist to determine the size of spleen, size and echo texture of liver. Portal vein diameter, presents of ascites, and fetal well-being. The parameters were entered in self-designed proforma, and data was analyzed with help of SPSS soft ware (ver. 17.0).

In our study following patients were excluded, patients of previous painless hemetemesis or malena, endoscopic sclerotherapy or band ligation; previous surgery for portal hypertension or transjugular intrahepatic porto systemic stent shunt placement, and patient not willing for assessment of viral marker.

RESULTS:

In our study 186 patients were recurred, out of them 142(76.6%) were not infected while 44(23.7%) were infected. Out of 44 infected patients, hepatitis C was present 20 patients accounting 10.80%, and hepatitis B was present in 14 patients accounting 7.52%. Both hepatitis B and C were present in 5 patients accounting 2.70%. Quite significant number of patients had hepatitis B alongwith hepatitis D infection 4 (2.15%), while combined above three viruses were found in only 0.53% of cases. Table; 1

Arthralgia and fibromyalgia were common symptoms, out of 186 these symptoms were present in 44 and 29 numbers of patients respectively, and among them infected patients were 34 and 21 (77.27% and 72.41%).These symptoms were more common in patients of hepatitis C viral infection. Table; 2

History of blood transfusion was present in 35 number of patients (18.81%) out of 186, out of 35 cases 19 were infected (54.28%). While history of therapeutic injections were found in 135 number of cases out of 186 (72.58%), among 135 cases only 34 were infected (25.18%). All cases had history of body piercing, among them 44 were infected. Table; 2

TABLE; 1

Virus status	No. of patients	Percentage
No viral Markers detected	142	76.3
Viral Markers detected	44	23.7
1. Hepatitis B Viral Marker	14	7.52
2. Hepatitis C Viral Marker	20	10.80
3. Hepatitis B+C Viral Markers	5	2.70
4. Hepatitis B+D Viral Markers	4	2.15
5. Hepatitis B+D+C Viral Markers	1	0.53

TABLE; 2
HISTORY, SIGN & SYMPTOMS IN NUMBER OF PATIENTS

	Virus Markers Not Detected	Virus Markers Detected					
		Hepatitis B	Hepatitis C	Hepatitis B+C	Hepatitis B+D	Hepatitis B+D+C	TOTAL No.
Arthralgia	10	10	15	4	4	1	44
Clubbing of fingers	1	1	6	1	0	0	9
Fibromyalgia	8	4	11	3	3	0	29
Palmer Erythemia	1	1	3	2	0	0	7
Ascites							
Minimal	0	1	1	1	1	0	4
Moderate	0	0	0	0	1	0	4
Palpable spleen	8	3	2	4	2	0	19
Enlarged tender liver	1	3	0	0	0	0	4
H/O Jaundice during pregnancy	1	2	0	0	0	0	3
H/OBlood Transfusion	16	5	12	0	2	0	35
H/O of Injections	101	10	16	4	4	0	135
H/O Body Piercing	142	14	20	5	4	1	186
Past H/O of jaundice	3	2	0	0	0	0	5

DISCUSSION

Rural population remains susceptible to all sorts of diseases because of Poverty, lack of education; poor access to health services, large family size, so this study was focused to such rural population. Viral Hepatitis rapidly spreads owing to lack of awareness of in rural population; therefore, they are at high risk of acquiring the infection of Hepatitis B and C. Ear piercing, multiple therapeutic injections and blood transfusions are among the leading predisposing factors for transmission of Hepatitis B & C in females.

Vertical transmission is the usual mode of hepatitis B transmission and blood transfusion for hepatitis C (more than 90% of cases) worldwide.[17]

50 to 70 percent of patients of hepatitis C infection carrier progress to chronic liver disease, can continue to infect others and at risk for developing cirrhosis, liver failure and hepatic carcinoma. In our study HCV infection was accounting 10.8%, which correlates with the studies done in rural area of Japan where HCV prevalence was 19.7%[18] and in Rawalpindi general surgical patients where prevalence was 16.31%.[19] Prevalence of HCV infection northern Pakistan was 25.7% [20] which is higher than our study; this may be due to lack of education and awareness of the disease and or lack of qualified, trained health workers.

Prevalence of HCV and HBV infection in pregnant Sudanese were 0.6 % and 5.6% [21] which is lower than our study. But in local study on pregnant women of Rahimyar Khan by Hakeem et al Anti HCV antibodies were present in 18.2%, HbsAg in 12.0% and both HCV and HBV viral marker were present in 2.9%,[22] this study values are closer to our study.

A European study by Landes M, et al [23] suggested that HIV (human immunodeficiency virus) infected pregnant women prevalence of hepatitis C infection ranged from 7.7% (among women of non drug users) to 28.9% who were inject able drug user and over all percentage were 12.3%, which is correlating to our study but in our study HIV was not measured.

As vertical transmission of HBV is significantly high, which may be the major contributing factor of hepatitis B related chronic liver disease in young children in high prevalence countries. The vertical transmission of hepatitis B and C virus infection leads early and higher rate of chronic liver disease in younger age group which can be reduce by immunizing all the neonates born to HBsAg positive mothers and by detection of virus DNA and or RNA before marriage, and render them non infective before conception.

To control the hepatitis in young children in Pakistan, hepatitis B vaccination in newborns and high-risk groups is mandatory. For HCV the use of therapeutic injections has to be curtailed to a minimum of 3 to 4 injections per person per year with stronger injection safety measures. There is a need to increase the public

awareness of vertical transmission of hepatitis B and hepatitis C and their effects at younger age population.

CONCLUSION:

In Taluka Mirokhan there is higher percentage (23.7%) of viral hepatitis infection in pregnant women, which is a big monster, and can lead to chronic hepatitis and cirrhosis of their children at younger age group, affecting main earning source of homes and district. Most hepatitis C infected women are asymptomatic and are unaware of their infection; they should be screened before marriage, conception and during pregnancy.

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