

OUTCOME OF VIRAL HEPATITIS IN PREGNANCY

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ABSTRACT

Background: Viral Hepatitis is inflammation of the liver, which may be caused by different types of hepatitis virus .

Objective: To study the problem of pregnant women with viral hepatitis and the foetal and maternal outcomes

Patients and methods:

Consecutive study included 104 pregnant patients with viral hepatitis attending 2 hospitals in medical city teaching complex (antenatal ward of Baghdad teaching hospital and gastroenterology and hepatology teaching hospital) from April 2005 to April 2007 they presented with jaundice during the third trimester of pregnancy. Patients had general and obstetrical assessment and blood specimens were collected and tested in laboratory for viral screen including hepatitis A, B, C, of hepatitis and those patients were followed to find the effect of the types of hepatitis on the maternal and foetal outcome .

Results:

Out of the 104 pregnant patients with viral hepatitis .56 cases (54%) were hepatitis E virus ,40 cases (38.4%) with hepatitis A virus ,6 cases (5.6%) with hepatitis B virus ,and 2 cases (1.9%) were co-infected with hepatitis B and C virus , (57.7%) of cases were between (20 -29 years) old. The peak incidence for the hepatitis B infection is found during July while for Hepatitis A infection found in August And for hepatitis E in January and August. Higher cumulative incidence of low birth weight (< 2500 g) was 25%, preterm labour (25%) was found in HEV. For Hepatitis A Virus incidence of low birth weight was (15%) , preterm labour 15%

Conclusion : Foetal and maternal complications were found to be higher in Hepatitis E Virus and Hepatitis B virus with or without Hepatitis C Virus than that of hepatitis A The highest range of foetal distress (25%) and emergency caesarean section (50%) found to be higher in HBV with or without HCV.

Therefore, hepatitis E (HEV) during third trimester of pregnancy associated with more serious complication than other types of viral hepatitis

Keywords: Pregnancy, viral hepatitis, seasonal variation, foetal and maternal outcome.

INTRODUCTION: viral Hepatitis is inflammation of the liver, which may be caused by different types of hepatitis virus (1) . There are at least six liver specific viruses etiological agents that have now been clearly identified and serological parameters are available for each of them. These include Hepatitis A (HAV), Hepatitis B (HBV), Hepatitis D (HDV), Hepatitis C (HCV), Hepatitis E (HEV), and Hepatitis G (HGV). (2) Jaundice in pregnancy demands a careful evaluation as many of the causes are of immediate significance to the foetus as well as the mother and have implications on the management of the pregnancy. (3). Jaundice complicates about 1 in 2000 pregnancies in developed countries and the incidence is higher in countries where the general incidence of hepatitis is increased (4).

An estimated 200,000 cases of hepatitis A virus

infection occur annually in United States.

HAV is transmitted primarily through faecal-oral contamination. (5) Hepatitis B Virus transmission occurs most commonly via parenteral or sexual contact . Approximately 200,000 persons in United States are newly diagnosed each year with an estimated 1.25 million chronic carriers (6). Acute HBV occurs in one to 2:1,000 pregnancies and chronic HBV in 5 to 15:1,000. Mother to infant transmission can occur during delivery, which is particularly true of women who are HBeAg positive because the vertical transmission rate has been reported to be as high as 90 % (7). Hepatitis B and C viruses are major sources of medical concern, approximately 25% of adults infected with hepatitis become ill with jaundice and (6 -10 %) with acute

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infection who becomes carriers (a carrier is a person who is infected but does not have symptoms). A quarter of carrier's progress to chronic active hepatitis. Persistence of hepatitis B surface Ag (HBsAg) after the acute phase of hepatitis is usually associated with clinical and laboratory evidence of chronic hepatitis.(7) Other less frequent types of infections include Hepatitis C and D which is commonly seen among drug addicts and patients with chronic blood transfusion e.g. patients with haemophilia

PATIENTS AND METHOD

A prospective case series study was performed during 24 months, which included pregnant women attending the antenatal clinic and the obstetrical ward in Baghdad teaching hospital and gastroenterology teaching hospital complaining from jaundice in their third trimester. Comprehensive history was taken including residency, recent travel abroad, drug or substance abuse, and history of blood transfusion or its products and family history.

Clinical assessment was done to evaluate vital signs, level of consciousness, and degree of jaundice, hydration status, and hepatic tenderness.

Obstetrical assessment was done including estimation of gestational age, foetal viability and ultrasonic assessment of biophysical activity for foetal wellbeing and for hepatic and biliary tract assessment. Uterine irritability and vaginal examination was done when indicated.

Blood was drawn by routine venipuncture with universal precaution (wearing gloves) from these patients at the time of presentation and during hospitalization and send for Haematological, biochemical, and serological screening was done including blood group and rhesus factor, full blood counts, liver and renal function test, clotting studies, Serological markers including anti HAV antibodies IgM, HBsAg, anti HBc antibodies IgM, anti HCV antibodies IgM, anti HEV antibodies IgM, all these estimated by (ELISA) tests. Enzyme linked immunosorbent assay (ELISA) is widely used technique for detecting the presence of a particular molecule (e.g. Drug, antidrug) antibody in a fluid (e.g. Serum, plasma.) a number of different formats this (direct, indirect, sandwich, bridging, competitive) can be used depending on the molecule of interest. ELISAs can be developed for quantitative and qualitative purposes. The underlying aetiology of jaundice was diagnosed depending on the data collected, biochemical and serological markers and ultrasonic findings.

On each occasion, medical, obstetrical complication and pregnancy outcome were documented.

RESULTS:

The analysis was based on 104 pregnant patients proved to have the viral hepatitis infection at third trimester. (Table 1) shows the age distribution of the study sample, where (5.8%) were below 20 years old, (57.7%) of cases lie within the age of 20-29 years, and (33.7%) of cases lie within the age 30 -39 years (2.8%) were more than 39 years old., (fig. 1)

Hepatitis E virus accounted for (54%) of cases, Hepatitis A virus (38.4%) of cases followed by Hepatitis B virus (5.7%), and Hepatitis B&C (1.9%)(table 2 & fig 2)

The seasonal variation of hepatitis during the period of study show the increment in hepatitis E infection has more than one peak, while HAV shows its peak in August and HBV infections run more or less in steady way.(figure 3)

The higher incidence of foetal complication was found among the HEV infected women than the other types (intrauterine death 12.5%, preterm labour 25%, foetal distress 18%, low birth weight 25%, emergency C/S 18%) while maternal complications was higher in HBV +/-HCV (postpartum haemorrhage was 100%) (Figure 4 + table 4)

There is no maternal death recorded in the studying sample but the incidence of foetal loss (intrauterine death and early neonatal death was higher in HEV (intrauterine death 12.5% and early neonatal death 12.5%) in comparison to HAV and HBV as their incidence for intrauterine death were 5% for HAV and 12.5% for HBV, but no early neonatal death was recorded in HAV and HBV. (Table 5)

AGE (YEARS)	NO. OF CASES	%
Less than 20	6	5.8
20 - 29	60	57.7
30 - 39	35	33.7
< 39	3	2.8

TABLE(1)
AGE DISTRIBUTION OF THE STUDYING SAMPLE

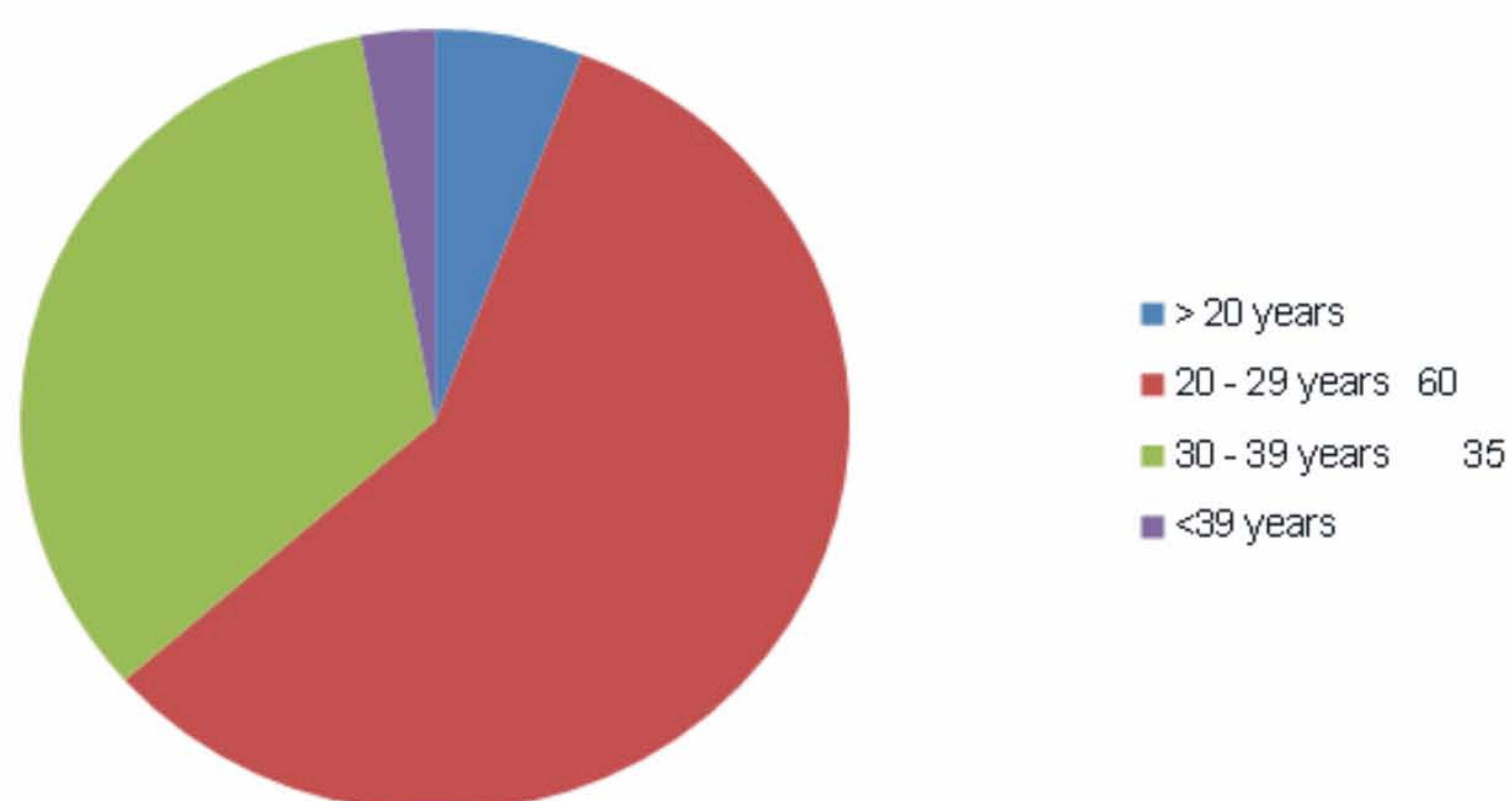


FIG. (1)

AGE DISTRIBUTION OF THE STUDYING SAMPLE

NO. AND PERCENTAGE OF VIRAL HEPATITIS IN THE

STUDY

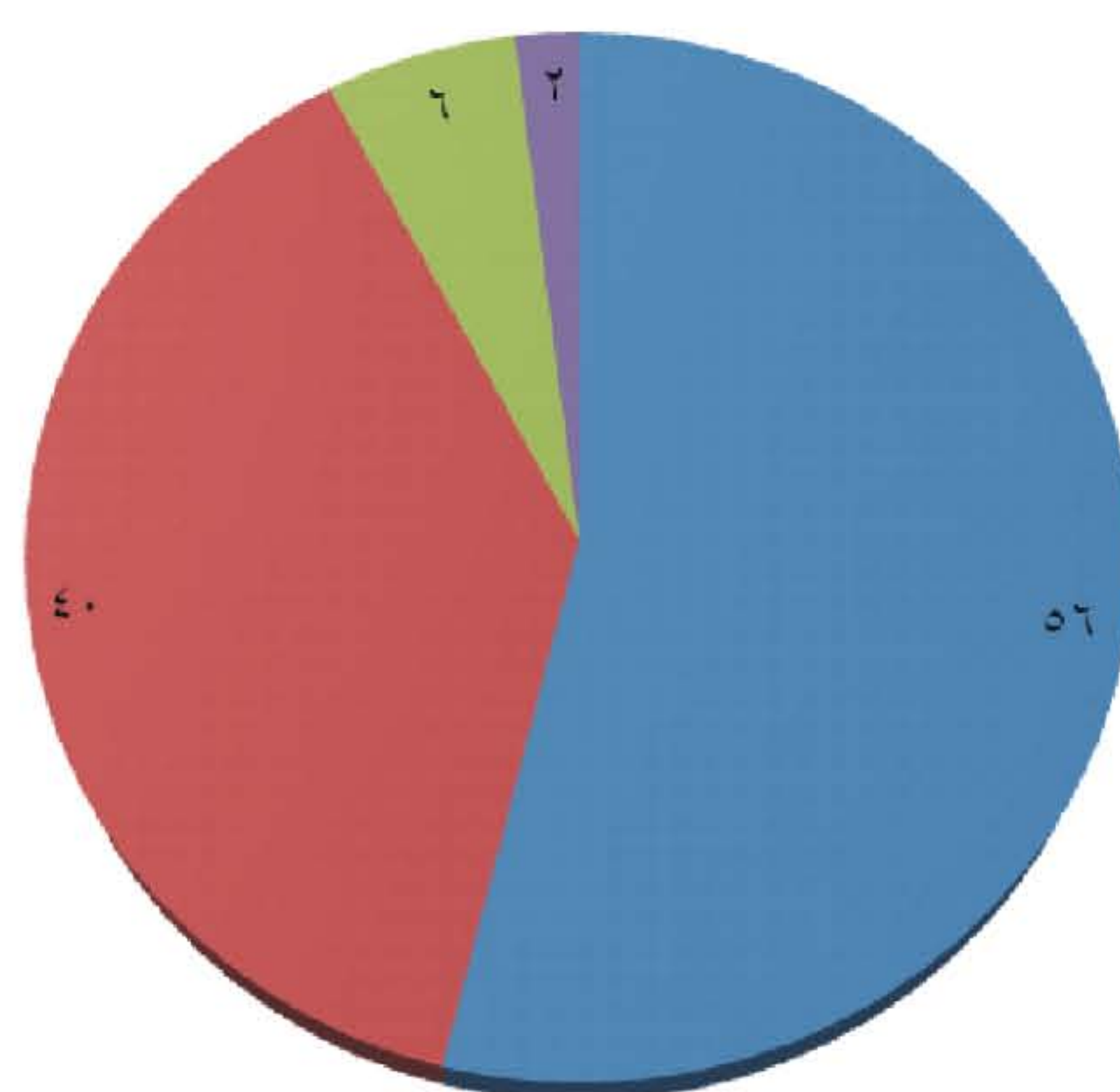


FIGURE (2)

NO. AND PERCENTAGE OF VIRAL HEPATITIS IN THE STUDIED PATIENTS

TABLE (2)

VIRAL HEPATITIS	NO. TOTAL (104)	%
HEV	56	54
HAV	40	38.4
HBV	6	5.7
MIXED VIRAL HEPATITIS	2	1.9

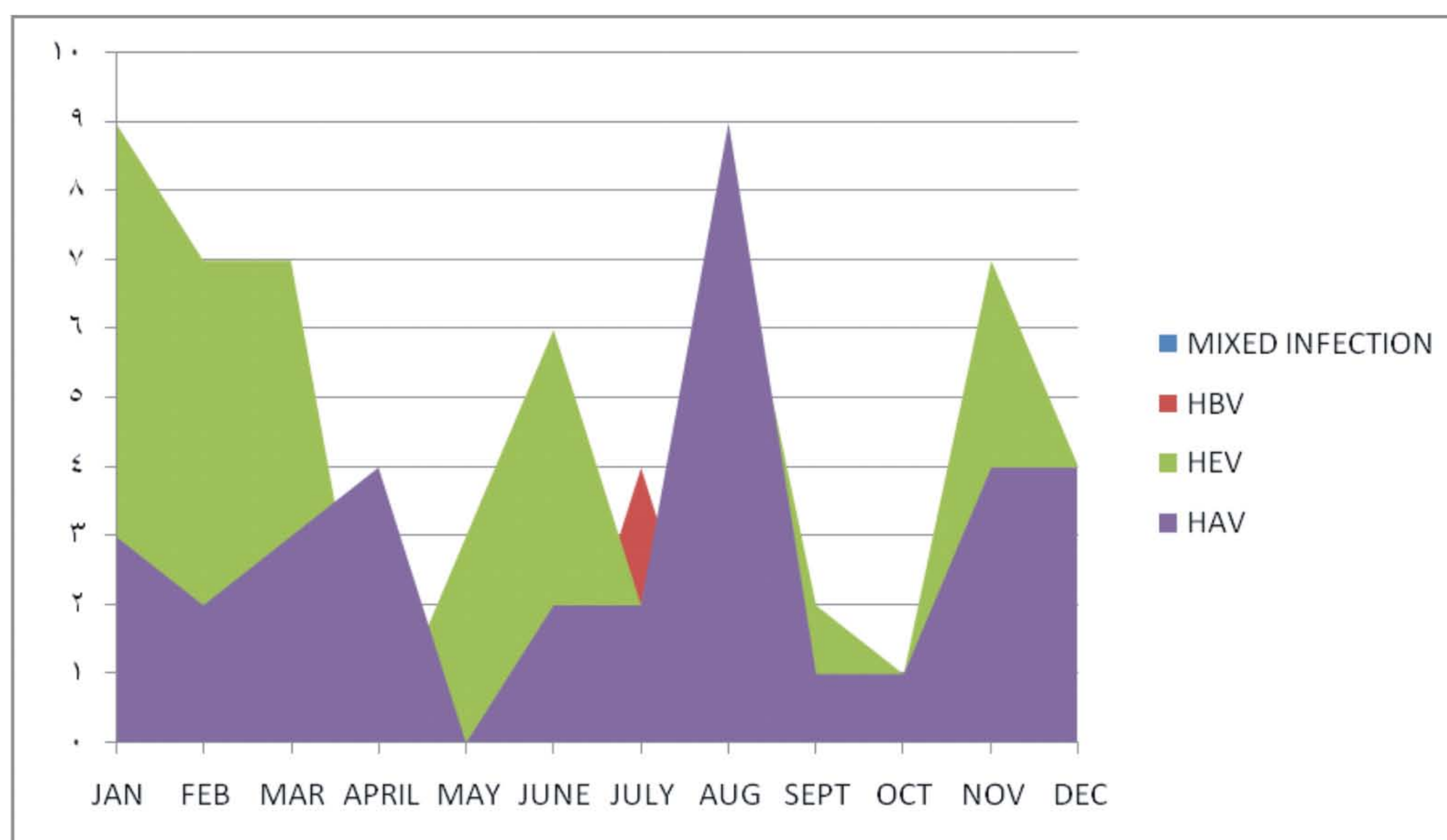


FIGURE (3)
FREQUENCY DISTRIBUTION OF THE STUDY SAMPLE BY MONTHES

FEOTAL AND MATERNAL COMPLICATION IN THE STUDIED PATIENTS (FIG. & TABLE 4)

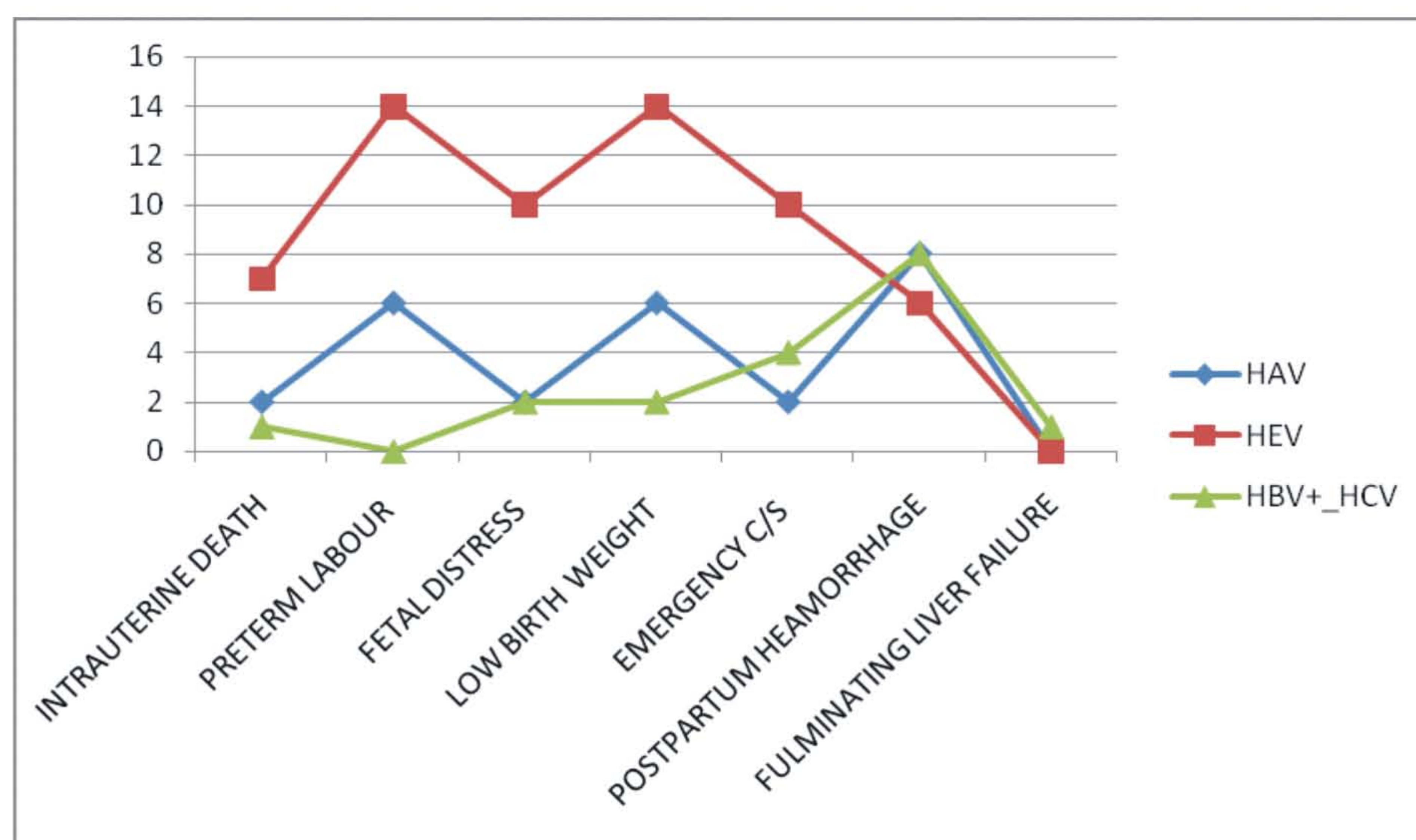


FIGURE (4)

Maternal and foetal complication	HAV NO.	HAV %	HEV NO.	HEV %	HBV(+/- HCV) NO.	HBV %
INTRAUTERINE DEATH	2	5%	7	12.5%	1	12.5%
PRETERM LABOUR	6	15%	14	25%	0	0
FETAL DISTRESS	2	5%	10	18%	2	25%
LOW BIRTH WEIGHT	6	15%	14	25%	2	25%
EMERGENCY C/S	2	5%	10	18%	4	50%
POST PARTUM HAEMORRHAGE	8	20%	6	11%	8	100%
FULMINATING LIVER FAILURE	0	0	0	0	1	12.5%

TABLE (4)

TYPE OF VIRAL HEPATITIS	HAV	HEV	HBV
MATERNAL DEATH	0	0	0
INTRAUTERINE DEATH	2 (5%)	7 (12.5%)	1 (12.5%)
EARLY NEONATAL DEATH	0	7 (12.5%)	0

THE INCIDENCE RATE OF FETAL MORTALITY BY TYPE OF VIRAL HEPATITIS

(Table 5)

DISCUSSION:

Viral hepatitis is a global health problem, it has a worldwide distribution but the prevalence of each virus differs from one country to another 8

In a study of 104 pregnant women proved to be infected with hepatitis. Virus The type of viral hepatitis in pregnancy are varied greatly , absolute figures for incidence of viral hepatitis in pregnancy are difficult to obtain as previous estimates suffered from the lack of modern serological testing for hepatitis A,B,C,and E. (9)

During the period of the study hepatitis E infection was the most common type detected among 56/104 pregnant patients admitted to the hospital and this represented 54 % of the total number

Followed by hepatitis A infection, which account for

40/104 pregnant patients and this represented 38.4% of the total number. This agree with the a study done by BenHamed S who found that the HEV infection is the most frequent cause of hepatitis among the pregnant women in Tunisia(10). Some authors explained this by the fact that the pregnant women are more prone for hepatitis E infection and even the mild infection during pregnancy may progress to more severe form of fulminating hepatic failure (11. Wijdan (2002) in the study in Ibn- Al -Khateeb hospital in Baghdad from 1991 -2000 found the number of admission of viral hepatitis varies in ten years ranged between 255 in the year 1998 to 514 in the year 1993. A noticeable increase in hospital admission was reported in 1993, 1994 (389 cases) and 1996 (447 cases).The highest percentage

of admission was in the age group 16 -30 years and female to male ratio of 1.3 :1.(12)

Bista, 2006 in Nepal found that the majority of their patients were in third trimester and infected with hepatitis E virus. In our study the higher incidence of infections with HEV and HAV can be explained by the relative poor living conditions, extreme unsafe sanitary condition, malnutrition among the pregnant women in these areas, in addition to the prevalence of other infections that may compromise the women's health (13)

In our study, the peak of hepatitis E infection was in January and then another peak in August and for Hepatitis A infection was in August and this agrees with the study done by Kumar et al (2005) in India who found that the largest number of cases of HEV infection had occurred in July. This may be attributed to the hot climate in these

countries with poor availability of safe drinking water that may lead to HEV epidemics, (14). So the control of disease depends upon improving sanitation, proper sewage disposal and advising the public to follow proper hygienic precaution like boiling drinking water. HEV infection was associated with higher incidence of foetal and maternal complication than other type and this agrees with the result obtained by Bista in 2006 (13) and that obtained by Delia Buccia, 2006 among the displaced pregnant patient in Darfur - Sudan, where HEV was the most common type of viral hepatitis among the pregnant women (15)

Acute HBV infection represented by HbsAg and HBc Ag IgM constituted 6/104 cases (5.7%) while HBV and HCV infection was 2/104 (1.9%) and this percentage is considered low in comparison to the percentage of HEV, HAV infection and this may be due to the application of vaccination program, the more caution taken by the medical staff regarding syringe, surgical tools, the implementation of more expanded and accurate sero diagnosis for the transfused blood products which considered to be important transfusing agents for this virus.

CONCLUSION:

Acute viral hepatitis is common infectious diseases in our country. It occurs through the year with increase in rate during hot weather. Hepatitis E virus was the most common cause of acute infection in the study with adverse maternal and foetal outcome, followed by hepatitis A viral infection, while mixed infection with HBV and HCV had statistically significant maternal complication. No maternal mortality was recorded in this study but foetal loss including both intra uterine death and early neonatal death was statistically significant with hepatitis E viral infection.

The detection of certain hepatitis viruses does not exclude the simultaneous infection with other hepatitis mainly those sharing the same dissemination route with the index virus

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