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A Survey of the Current Management of Hepatitis B Virus Infection in Pregnancy among Obstetrics and Gynaecological Medical Trainees in Nigeria

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ABSTRACT

Context: *Hepatitis B virus infection is a major public health problem and can be transmitted from mother to child in pregnancy. Vertical transmission could be reduced by maternal antiviral therapy and adequate immunisation of the baby.*

Objective: *To survey the current management of hepatitis B virus infection in pregnancy by Nigerian medical doctors from obstetrics and gynaecology department.*

Methods: *A semi-structured questionnaire was designed for cross-sectional survey of doctors attending update course in 2011 for part I & II fellowship examinations. The questionnaires were filled and then analysed using 2008 Epi Info™ software.*

Results: *A total of 96 (83.5%) of the semi-structured questionnaire were correctly filled and analysed out of the 115 questionnaire distributed. The mean duration of obstetrics and gynaecological practice of respondents in this study was 4.6±3.3 years. Of 29 different hospitals represented in this study, most doctors work at the University Teaching Hospital 66(68.5%) and Federal Medical Centre 17 (17.7%). Forty (41.7%) of the doctors asserted that hepatitis B surface antigens was routinely done in their centre while majority 56 (58.3) confirmed that it was not routinely done in their institution. Most of the hospital for residency training do not have protocol for management of reactive hepatitis B surface antigen in pregnancy as indicated by 71(74.0) doctors.*

Conclusion: *Routine screening for HBV in pregnancy is not done by all doctors in obstetrics and as such is not practiced in all tertiary hospitals in Nigeria and the protocols for management of reactive HBs Ag is not standardized in all hospitals. There is marked variation in the perception of current management of hepatitis B virus infection in Nigeria. Provision of a national guideline, adequate laboratory services and equipping the health institutions will be beneficial in the management of HBV in pregnancy.*

INTRODUCTION

The Management of Hepatitis B virus (HBV) infection in pregnancy is complex [1]. Worthy of note is the fact that Hepatitis B infection is a potentially life threatening liver disease caused by hepatitis B Virus [2]. It is a major global health problem and the most serious type of hepatitis [2, 3]. Worldwide about two billion people are infected with the virus while more than 400million people will eventually become chronic carriers[4,5]. Many chronic carriers of HBV are asymptomatic [4,5]. Both the chronic and active infected pregnant women may transmit the infection to the infant [2,4,5,6].

Most reported patients with chronic HBV have acquired HBV from their mother at birth while later in life transmission is mainly through sexual contacts [.4]. The risk of perinatal transmission is associated with the hepatitis Be Antigen (HBeAg) Status of the mother as well as the DNA viral level, level of alanine aminotransferases and presence of fibrosis or area of fibrin micro-infection [4,5,6]. When a mother is positive for both hepatitis B surface antigen and HBeAg the

chances of transmission to her baby is up to 90% and about 10% when HBe Ag is negative [4,5]. Also when the DNA viral genome is greater than 10^7 genome equivalents/ml the risk of transmission is high [6].

Given the correlation between high HBV DNA level and the risk of vertical transmission, investigators have studied the risk of antiviral to prevent HBV transmission [7]. Currently the United States Food and Drug Administration lists telbivudine and tenofovir as pregnancy category B drugs while lamivudine, entecavir, adefovir and emtricitabine are pregnancy category C drugs [7,8]. Additional drugs for HBV mono-infection include clevudine valtorcitabine, pegylated and non-pegylated interferon though contraindicated in pregnancy [9].

Other indications for therapy include presence of liver fibrosis or area of necro-inflamination in chronic cares and high level of alanine aminotransferase in active cases [9]. Acute hepatitis infection in the first or second trimester carries a perinatal transmission rate of approximately 10% and this increase to more than 75% in third trimester [10].

There are varying recommendations on the appropriate antiviral drugs to be used to decrease the viral load, and on when to start the drugs [10]. Guideline from South Australian perinatal practice recommends initation of antiviral (terbutaline) at 32weeks gestational age and continues till delivery and may be continued till 1month after delivery [1,10,11,12]. American College of Obstetricians and Gynaecologists (ACOG) and Royal College of Obstetricians and Gynaecologists (RCOG) in Conjunction with European Association for study of the liver and British viral hepatitis group recommends that Lamividine given during the last trimester of pregnancy in pregnant HBsAg hepatitis B surface antigen positive woman with high level of viremia reduces the risk of intra-uterine and perinatal transmission of HBV (level III evidence, Level C Recommendation)[18,19]. This reduction is marked if given in addition to passive and active vaccination (level a evidence, Level A recommendation) [1,8]. Lamividine has been studied as antiviral for HBV most commonly and extensively [7,13]. Lamividine therapy leads to rapid reduction of HBV-DNA levels with a median reduction of 97% afterwards. In a pilot study eight women with HBV DNA level greater than 10^9 copies/ml were given Lamividine during the last 6 weeks of pregnancy. Their babies were vaccinated with HBV vaccine and HBIG was also given at birth. Only one (12.5%) of the eight babies was HBsAg-positive at 1 year compared to seven (7) of 25 (28%) cases of transmission in a matched historical control population [1,7,13]. This finding led to a randomised double-blind, placebo-controlled trial of Lamividine to prevent transmission in highly viremic HBeAg-positive women [14]. One year after birth, 18% of babies with Lamividine-treated mothers were HBsAg-positive compared to 39% in the placebo group with both receiving HBV vaccine and HBIG [14]. Based on these results, the authors recommended treatment in the third trimester for women with high viral loads [14].

Meta-analysis of (IORCTs) of women who were treated with Lamividine from 24-32weeks of gestation to 1 month post-delivery and new born

who received immunoprophyl axis at birth showed a 13-24% reduction of intra-uterine exposure and a 1.4% to 2% lower perinatal infection at 9-12months [14,15,16]. Telbivudine was commenced between 28 and 32weeks gestation and continued for a month in a recent study on 31 pregnant women at China[14,17]. Viral load in those who received telbivudine were markedly reduced from 7.38log$_{10}$ at baseline to 4.08log$_{10}$ prior to parturition (P<0.01). The infection rate was 0% in those who received telbivudine and 13.3% in the untreated controls [14,17]. Babies from both groups received active and passive immunoprophylaxis. Active and passive immunoprophylaxis within 12 hours after birth for newborns from Hepatitis B carriers (level A recommendation) is recommended [.8,10,18]. This is effective in preventing transmission of hepatitis B in more that 95% of babies. The remaining percentage (<5%) raises the quest of whether antiviral agents before delivery would lower the viral load adequately to prevent transmission [14]. This suggestion correlates with the efficacious therapy of antiviral agents in HIV and herpes infection in reducing mother to child transmission [14].

The clinical algorithum proposed for the management of HBV in pregnancy involves Screening of all pregnant women at first trimester (level A recommendation) [10,18]. HBsAg pregnant women with positive results should be counselled and finding notified where applicable [10]. Serologial assessment of HBeAg, HBV Viral Load, Anti HBe, Liver function test at 28weeks, HBV DNA Polymerase Chain Reaction (PCR) [10,18]. Those with very active HBV (significant alanine aminotransferase with high viral load) or if cirrhosis is suspected, low platelet or suggestive imaging should start on antiviral drugs irrespective of gestational age.

Most studies recommended initiation of antiviral therapy in third trimester between 28-34weeks gestation for chronic carriers of HBV after a thorough adequate counselling on the risks and benefits [8, 10, 12,14,15,16,18]. It was also recommended that mono-therapy is effective and could be continued till birth or even up to 1 – 6 months after birth [10, 14, 15, 16, 18]. The HBV treatment algorithin from keeffe and colleagues recommended individualisation of therapy for pregnant HBV patients [19]. Currently there is no specific recommendation for antiviral therapy of pregnant women with HBV by Center for Disease control and prevention, World Health Organisation, American Association for the study of liver disease (AASLD), ACOG and BCOG.[7,8,19] However all the available guideline recommended Active and Passive immunoprophylaxis for the baby within 12hours of delivery [1,7,8,10,14,18,19].

There has not been any study in the Southeast Nigeria on the management modalities of pregnant women with HBV not minding the non-standardization pattern of its management and the non affordability and availability of the hepatitis antiviral immunoglobulin, Hepatitis B Immunoglobulins and vaccines. As a result we decided to evaluate the various patterns and current management modalities as perceived by doctors. The aim is to determine the current practice and management of HBV infection in pregnancy in Nigeria and educate the clinicians on

the need for further research and standardization of the protocol for management of HBV in pregnancy.

METHODOLOGY

This study was carried at the update and revision course organised for the part I&II fellowship examination from the 22nd – 28th August 2011 at University of Calabar Teaching Hospital Calabar, Cross-river State; South-South Nigeria. Doctors in training and specialists who attended the course were recruited for the study.

A semi-structural questionnaire was administered consecutively to all the participants of the update course. The questionnaire was pretested at Federal Medical Centre Abakaliki among the resident doctors and specialists in Obstetrics and Gynecology departments and validated by a pilot study. Written consent was obtained from the respondents before the study. The questionnaire were administered by trained research assistants from Obstetrics and Gynecology department of Federal Medical Centre Abakaliki who attended the update course.

Information sought in the study included the Socio demographic characteristics (Age, Sex, Marital Status, Religion, Level and Year of practice as well as area of practice). Other information sought include the management of hepatitis and reactive HBsAg in pregnancy in their hospital of practice as well as the availability and affordability of these investigations and drugs used for the management.

A total of 200 questionnaires were prepared for the study and 115 (57.5%) were distributed out of which 96 (83.5%) were correctly filled, returned and analysed.

The data was fed into the computer and analysed using Epi-Info™ 2008 Statistical Analysis software package (CDC-Atlanta USA A 3.5.1).

The study was certified by the Ethics and Research Committee of the hospital.

RESULTS

The mean age of the respondents was 35.6 ± 4.9 years with a range of 25 to 46 years. Majority 64/96 (66.7%) of the respondents were within the age bracket of 30- 39 years. Most 72/96 (75%) were married while very few 4/96 (4.2%) were not married. Five (5.2%) 5/96 were engaged. Most of the Doctors that responded were from Pentecostal denomination 40/96 (41.7%) of the Christian religion. Other Christian religion respondents were Protestants 23/96 (24%) and Roman Catholic 22/96 (22.9%). Muslims accounted for 11/96 (11.5%) of the respondents. Most of the respondents 82/96 (85.4%) were junior registrars and the remaining percentage of 14/96 (14.6%) were senior registrar of Obstetrics and Gynecology. The mean duration of practice of the respondents in this study was 4.6 years ± 3.3 years with a range of 1- 20 years. Most of the Doctors 59 (61.5%) had been in department of Obstetrics and Gynecology for a period of 3- 5 years. Six (6.3%) has practiced obstetrics for more than 10 years while 12 (12.5%), 3 (3.1%) and 16 (16.7) had practiced obstetrics and Gynaecology for 6- 8 years, 9- 10 years and 1- 2 years respectively. Most of the Doctors 66/99 (68.5%) worked the Federal teaching Hospitals and 17/99 (17.7%) in the Federal Medical centre. Majority of the

respondents practiced in the South-South and Southeast with similar proportion of 28/96 (29.2%). Other zones that participated in this study were Southwest 17 /96(17.7%), North centre 16/96 (16.7%), Northwest 6/96 (6.3%) and Northeast 1/96 (1.0). The total annual deliveries seen in the institution were mainly within the range of 2501- 3000 and 3001 to 3500 with percentage of 22.9% and 18.8% respectively. Table 1.

Table 2 showed perception of current management of HBV infection in pregnancy. Majority of the Obstetrics and Gynecology doctors 83/96 (86.5%) in different institutions of residency training for Obstetrics and Gynecology had managed a case of Hepatitis B virus infection in pregnancy. Maternal mortality following HBV infection in pregnancy has been recorded by 24/96 (25%) of the respondents. Forty 40/96 (41.7%) of the Doctors asserted that Hepatitis B surface antigens was routinely done in their centre while majority 56/96 (58.3) confirmed that it was not routinely done in their institution. The doctors confirmed that most of their centre 71/96 (74.0) do not have protocol for management of reactive hepatitis B surface antigen in pregnancy. Few doctors 27/96 (28.1%) accepted that prophylactic drugs were given to pregnant woman with hepatitis B virus infection in their centre while majority affirmed that no prophylaxis was given in their centre or institution.

Table 3 showed the investigation done for pregnant woman with Hepatitis B virus infections in different institutions for residency training. The least investigation done was HBV DNA level 3/181 (3.1%) while the common investigation done was liver function test. No further investigation was done in some centre 7/181 (7.2%) after a reactive HBsAg.

Table 4 showed drugs given as prophylaxis in the course of management of hepatitis B virus infection. Most of the doctors 57 (57%) indicated that no drug was used as prophylaxis to pregnant woman with high DNA level or active hepatitis B virus infection in pregnancy in their centre. Twenty three 23/101 (22.8%) of the doctors asserted that multivitamins were given in their centre. Other drugs that were indicated as drugs given to pregnant woman with High viral DNA level or active HBV infection were lamivudine 15/101 (14.9%), Interferon 4/101 (4%) ,and Tenofavir 2/101 (2%).

Table 5 showed reason given for non administration of HBV prophylaxis. The reason given for non administration of prophylaxis in different institution included no protocol 79/97 (92.3%), non laboratory reagent for further studies 4/97 (4.2%), prophylaxis drugs not available 2/97 (2.1%). Nine 9/97 (9.4) do not know the reason why prophylaxis was not given and one claimed that they were not taught what to do.

Table 6 showed drugs given to babies whose mothers are reactive to HBsAg and with active infection and or high viral level. Most of the doctors 61/113 (61.4%) acclaimed that HBV vaccine are given in their institution while only 26/113(25.7) asserted that HBV immunoglobulin are given to the babies in their centre. Nine (8.9%) 9/113 indicated that they do not know any drug given to the babies and same percentage of doctors claimed that nothing is done to the babies in their centres. Six (5.9%) 6/113 indicated that

multivitamin is given while 2/113 (2.0%) indicated that lamivudine is given to the newly born babies in their centre.

Table I: Sociodermographic characteristics__

Variable	Frequency (96)	Percentages (100%)	Confidence Interval
Age (Years)			
20-29	4	4.2	1.1-10.3
30-39	64	66.7	56.3-76.0
40-49	28	29.2	20.3-39.3
Marital Status			
Engaged	5	5.2	1.7-11.7
Not married	4	4.2	1.1-10.3
Married	72	75.0	65.1-83.3
Single	15	15.6	9.0 -24.5
Religion			
Moslem	11	11.5	5.9-19.6
Pentecostal	40	41.7	31.7-52.2
Protestant	23	24.0	15.8-33.7
Roman Catholic	22	22.9	15.0-32.6
Level of practice			
Trainees(residents)	82	85.4	76.7-91.8
Medical specialists	14	14.6	8.2-23.3
Duration of practice (Frequency)			
1-2 yrs	16	16.7	9.8 - 25.6
3-5yrs	59	61.5	57.0 - 71.2
6-8yrs	12	12.5	6.6 - 20.8
9-10yrs	3	3.1	0.6 - 8.9
>10	6	6.3	2.3 – 13.1
Hospital of practice (99)*			
Private	2	2.0	0.2 – 7.0
State	10	10.4	5.1 – 18.3
FMC	17	17.7	10.7 – 26.8
Mission	1	1.0	0.0 - 5.7
Federal Teaching	66	68.8	58.5 – 77.8
State General	3	3.1	0.6 – 8.9
Area/zone of practice			

SouthEast	28	29.2	20.3 – 39.3
SouthWest	17	17.7	10.7 – 26.8
SouthSouth	28	29.2	20.3 – 39.3
NorthCentral	16	16.7	9.8 – 25.6
NorthWest	6	6.3	2.3 – 13.1
NorthEast	1	1.0	0.05 – 5.7
TOTAL NO OF DELIVERIES			
<500	1	1.0	0.0 – 5.77
500 – 1000	7	7.3	3.0 -14.4
1001 –1500	16	16.7	9.8 -25.6
1501 - 2000	3	3.1	0.6 – 8.9
2001 – 2500	10	10.4	5.1 – 18.3
2501 – 3000	22	22.9	15.0 – 32.6
3001 – 3500	18	18.8	11.5 – 28.0
3501 – 4000	3	3.1	0.6 – 8.9
>4000	16	16.7	9.8 – 25.6

FMC=Federal Medical Centre, *= Multiple entries allowed.

Table 2 Current management of HBV infection in pregnancy as evaluated by doctors in training

Variables		No	%	C/I
Have you managed any case of HBV infection in pregnancy	Yes	83	86.5	78.0–92.6
	No	13	13.5	7.4 – 22.0
Have you had any Maternal Mortality following HBV infection in pregnancy	Yes	24	25.0	16.7 – 34.9
	No	72	75.0	65.1– 83.3
Is Hepatitis B surface Antigen Routinely screened in your centre	Yes	40	41.7	31.7 - 52.2
	No	56	58.3	47.8 - 68.3
Does your centre have any protocol for management of hepatitis in pregnancy	Yes	25	26.0	17.6 – 36.0
	No	71	74.0	64.0 – 82.4
Are Prophylaxis for Reactive HBs Ag with positive HBe Ag and high chance of active hepatitis infection given in your centre	Yes	27	28.10	19. – 38.2
	No	69	71.9	61.8 – 80.6

Table 3: Further investigations done following reactive HBs Ag

Variables	Frequency(181)*	Percentages(100%)	Confidence Intervals
Liver Function Test	74	76.3	66.6 – 84.3
HBe Ag	32	33.0	23.8 – 43.3
HB core Antigen	27	27.8	19.2 – 37.9
HBc Ag	30	30.9	21.9 – 41.1
HBa Ag	7	7.2	3.0 – 14.3
HBV DNA level	3	3.1	0.6 – 8.8
No further investigation	7	7.2	3.0 – 14.3
Others	1	1.0	0.0 – 5.6

Others represent ultrasound

Table 4: Drugs given as prophylaxis to pregnant women with risk of transmission of HBV to their babies

Variables	Frequency(101)*	Percentages(100 %)	Confidence Interval
Lamividine	15	14.9	8.6 – 23.5
Interferon	4	4.0	1.1 – 9.9
Multivitamin	23	22.8	15.2 – 9.9
Tenofavir	2	0.2	0.2 - 7.0
Entecavir	Nil		
Telbivudine	Nil		
No drugs	57	56.4	46.7- 66.9

Table 5: Reasons for not giving prophylaxis in pregnacy

Variables	Frequency(97)*	percentages(100 %)	Confidence Interval
No protocol	79	82.3	72.0 – 88.5
No lab reagent for further investigation	4	4.2	0.6 – 8.9
prophylaxis drug not available	2	2.1	0.3 – 7.3
Not aware of reason	9	9.4	4.4 – 17.1

Was not taught what to do	1	1.0	0.0 – 5.7
Others	2	2.1	0.3 – 7.3

Others = drugs not affordable.

Table 6: Drug given to babies whose mothers are reactive to HBS Ag

Variables	Frequency(113)*	Percentage(100%)	Confidence Interval
Nothing	9	8.9	4.2 – 16.2
HBV vaccine	61	60.4	50.2 – 70.0
HB Immunoglobulin	26	25.7	17.6 – 35.4
Multivitamin	6	5.9	2.2 – 12.5
Lamividine	2	2.0	0.2 – 7.0
I don't know	9	8.9	4.2 – 16.2

***Multiple entries allowed.**

DISCUSSION

This study surveys the management modalities of reactive HBsAg in pregnancies by doctors in different training institution in Nigeria. In this study 83 (86.5%) of the respondents have managed a case of hepatitis B virus infection in pregnancy and 24 (25%) have observed Maternal Mortality following hepatitis in pregnancy in the course of their practice. This confirms that hepatitis B virus infection is endemic in Nigeria and this is in accordance with WHO classification for Hepatitis B virus endemicity [8,19]. Using the WHO classification some areas in Nigeria are hyper-endemic for hepatitis B virus infection with prevalences of 8.3% in Nnewi,[8] Anambra, 8.3% in Ahmedu Bello University Teaching Hospital Zaria (ABUTH), [20] 9.3% in Awka Anambra,[21] 11% in Markudi Benue,[22] 15.8% in University of Maiduguri Teaching Hospital (UMTH) Maiduguri, Borno State [23].

Despite this endemicity routine screening for HBsAg is done in some institutions as was indicated by 40(41.7%) of the respondents from different centres in this study. This shows that screening for HBsAg in pregnancy is not a routine practice in the whole training institutions in Nigeria. This is in deviant to the recommendation by the Royal College of Obstetricians and Gynaecologists (RCOG) of the Unitied Kingdom, American College of Obstetricians and Gynaecologists (ACOG), European guideline for

the management of Hepatitis B and C virus infection and many other Colleges of Obstetrics and Gynecologies all over the world.[18,24,25]. Routine screening of all pregnant women during prenatal period has been shown to be an efficient and effective means of identifying infants at risk of becoming long term HBV carries [26]. Long term sequelae of chronic liver disease can be averted if those infants born to HBV positive mothers are immunized using a schedule of hepatitis B vaccine and Hepatitis B immunoglobulin at birth with follow up hepatitis B immunization [26]. A decision analysis comparing the direct and indirect costs of routine prenatal screening and new born immunization program in the United States was shown to be cost effective [27].

Currently screening guideline also includes source and output tracing. This means that invitations for HBV – screening are extended to plausible source (s) and contacts of a notified HBV carries [25,28]. Hepatitis B infant is a notifiable disease in many European Countries [29,30].

This low screening rate noted in this study could be attributed to the fact that there is no protocol or guideline in most of our institutions for the management of reactive hepatitis B surface antigen in pregnancy. Majority of the respondents 71(74%) confirms that their institution do not have a protocol for management of hepatitis in pregnancy. However 27(28.10%) of the respondent accepted administering prophylaxis for reactive HBsAg with positive HBeAg and or with high chances of active hepatitis in pregnancy.

Antiviral and Hepatitis B Immunoglobulin (HBIg) have been recommended as means of preventing vertical transmission during pregnancy. Administering antiviral therapy like lamivudine, telbivudine or tenofavir could lead to rapid reduction of HBV-DNA levels, with median reduction of 97% after 2 weeks [31]. In 2008 keeffe treatment algorithm recommended that the antivirus drugs could be given during the third trimester in pregnant women with HBV DNA levels greater than 10^7 copies/ml, and elevated aminotransferase levels or those who already have had an HBsAg-positive child [7,32]. Li XM et al, in 2003 showed that intrauterine infection was reduced to 16.3% against 32.7% (controls) with the use of lamivudine from 28 weeks of gestation at a dose of 100mg/day [33]. The drugs administered as prophylaxis in this study are commonly multivitamins while majority affirm that no drug is given as prophylaxis in their centre of practice. Only very few administered antiviral to pregnant women with risk of transmission to the baby in the proportion of 15(14.9%) for Lamivudine, 4(4.0%) for tenofavir and 2(2.0%) for telbivudine in this study. The main reason for not giving antiviral prophylaxis by the respondents was none availability of a protocol. Lack of guideline was the most commonly cited reasons for not recommending antiviral therapy in other studies. Other reasons given were prophylactic drugs not readily available, lack of information on further treatment and no laboratory for further investigation to determine those who are at high risk of transmission to the baby.

The investigations that determine these high risks of transmission to the baby include viral DNA level, HBeAg and aminotransferases. In this study liver function test is commonly done to ascertain

the amino transferases level for further evaluation. However viral DNA level and HBeAg as an ancillary for further management of reactive HBsAg patients are not commonly done. The reasons for this is because of non-availability of reagent and research institute as well the cost of doing this further investigation. In Nigeria HBV DNA level is done only at National Institute of Medical Research (NIMR) and it costs about ₦100,000 ($60)to do the test.

This study indicated that passive and active immunization for prevention of mother to child transmission of HBV was sparing done in Nigerian institution. This is an aberration from the recommendation from ACOG, RCOG, and European guidelines, Advisory Committee on immunization practices which recommends that Hepatitis B Immunoglobulin should be administered within 12hours of delivery alongside with three doses of HBV vaccination administered within the first six (6) months of life to infants born to mothers with HBV[.18,19,24]. Nearly 100% consensus was noted in studies done in developed countries on evaluating the current immunization of babies at risk of vertical transmission as part of management of hepatitis B in pregnancy[7]. The noted reduced and almost no administration of HBIG noted in this study is worrisome because there is proven benefit that it confers marked reduction in transmission of HBV from mother to child. Currently this poor or non-administration of HBIG has been attributed to non-availability of the immunoglobulin as well as the cost of the HBIG. The cost of one vial when sourced is One hundred and fifty thousand naira (₦150,000.00) which is equivalent to one hundred dollars ($100). This makes it difficult for parents from low resource setting like ours to procure this for their baby. This is because of poor remuneration as minimum wage is about one twentieth the cost of the HBIG in the state government and one tenth as proposed for the Federal Government staff of Nigeria. This money is meant to cater for the man and his household as well as his extended family members and the in-laws as such buying the HBIG will not be an option because there are no immediate clinically features or complication perceived by the parents. There is also worry and fear of maintaining the cold chain for the HBIG in Nigeria because of the epileptic power supply that is so common in Nigeria. This may affect the potency even when the drug is made available.

Early seminal fluid analysis by Beasley et al showed that HBIG administration could reduce the rate of HBV transmission from more than 90% from HBsAg positive mothers to about 26%. Combination with the HBV vaccine will further reduce it to 3 – 7%. Failure rate of 7 – 9% is noted in high viraemic HBeAg but as low as about 3% in low viraemic HBeAg. This finding supports antiviral therapy during pregnancy to reduce the viral load and thereby reduce the vertical transmission as well as reduce the failure rate of Immuno-prophylaxis [34].

WHO recommended Universal Vaccination for newborn babies[34]. Nigeria approved the inclusion of HBV vaccine in its national program on Immunization (NPI) in 1995 but HBV immunization coverage rate is still not optimal in Nigeria as was seen in this study. Recent study showed that the coverage rate of active

immunization (HBV vaccination) in Nigeria was currently 41% [8,35]. The consequences of this is that there seems to be a generation to generation vicious cycle of vertical transmission with antecedent risk of chronic liver disease late in life.

In Conclusion, this study revealed that there is paucity in the optimal management of HBV infection in pregnancy in the Nigeria. This could be attributed to lack of a standardized guideline or protocol as well as non availability and affordability of the drugs and laboratory reagents for comprehensive investigations and management.

Recommendation

We there recommend that the antiviral drugs and the HBIG needed to reduce transmission and propagation of the virus and its consequences should be made available and subsidized by government to help reduce the perpetuation of this virus. Also health and sex education in relation to ways of preventing transmission of HBV should be made part of the health curriculum in our schools as well as among pregnant women during antenatal care especially in endemic areas like Nigeria. Non-governmental organization and Governmental agencies should corroborate to device and enforce practical ways of reducing HBV infection in developing countries so that the gap between the developed and developing countries will be abridged or erased. National guideline and protocols should be made in line with the recommendations available in developed countries.

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