

# Anemia in Pregnant Women with Hepatitis B Viral DNA in Port Harcourt, Nigeria

Sir,

Several studies have reported the prevalence of hepatitis B in pregnant women and the incidence of mother-to-child transmission; some studies have documented the efficacy and cost-effectiveness of antiviral agents to prevent the virus from being transmitted from mothers who are chronic carriers to their infants perinatally. The prevalence of hepatitis B surface antigenemia (HBsAg) in pregnant women at the study site was earlier reported as 6%,<sup>[1]</sup> while 12% of Nigerians are thought to be chronic carriers of hepatitis B virus (HBV).<sup>[2]</sup>

We observed a cross-section of 500 pregnant women aged between 15 and 45 years, who had booked and undergone antenatal care in an obstetrics department in a teaching hospital. When we screened them at the point of delivery for HBsAg by immunochromogenic tests and subsequently, HBV-DNA by real-time polymerase chain reaction; 31 (6.2%) of them had HBV-DNA. We also observed that over the 7-month period of recruiting women for this study that the women who possessed HBV-DNA had statistical significantly lower packed cell volume and red cell indices at delivery than those without HBV-DNA [Table 1]. This gave a picture of iron-deficiency anemia in this group of parturient women.

Chronic liver disease is accompanied by many hematologic aberrations. Iron deficiency is usually seen in advanced cases of chronic liver diseases; and the etiopathogenesis is multifactorial but largely due to bleeding from the gastrointestinal tract<sup>[3]</sup> either due to portal hypertension, varices, or derangement in the coagulation factors that are produced by the liver. Hepatitis-associated aplastic anemia can also occur though quite uncommonly, 2–3 months after an acute attack of hepatitis leading to pancytopenia.<sup>[4]</sup> It is an acquired aplastic anemia syndrome associated with hepatitis B and other viruses;

development of aplastic anemia in hepatitis B infection may be fatal if not treated promptly.<sup>[5]</sup>

Anemia in pregnancy is quite common in the developing world and is defined as hemoglobin <11 g/dl in the first and third trimesters;<sup>[6]</sup> however, some women may be anemic before conception. Many antenatal services screen women for hepatitis B and also evaluate the packed cell volume at initiation of antenatal care; because of this important finding in this our study, it would be necessary to assess pregnant women with hepatitis B infection who present with anemia for the possibility of chronic liver disease by carrying out other investigations to rule out gastrointestinal bleeding, coagulopathy, and depletion of iron stores. Iron deficiency with or without anemia is associated with many symptoms and complications that have a significant and negative impact on patients with chronic liver disease. It can cause increased cardiovascular morbidity and mortality, impaired cognition, and decreased quality of life.<sup>[7]</sup> However, a study done to assess HBsAg and hematological changes in pregnant women showed HBsAg prevalence of 16.5%, but the red cell count and indices were not significantly affected in the positive women.<sup>[8]</sup>

Together with the physiological changes in pregnancy, the increased demand for iron and adverse change in the iron homeostasis in pregnancy may lead to poor outcome in pregnant women in pregnancy. We suggest that this should be looked into and a multidisciplinary approach involving the obstetricians, hematologist, gastroenterologist, and pediatrician, be adapted to provide care for pregnant women with hepatitis B infection.

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## Conflicts of interest

There are no conflicts of interest.

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**Table 1: Hematological parameters and hepatitis B virus-DNA status in women screened**

Characteristics	Pregnant mothers, mean±SD		t	P
	HBV positive	HBV negative		
PCV (%)	34.81±3.79	36.18±2.99	2.36	0.02*
WBC (×10 <sup>9</sup> /L)	11.18±1.98	12.85±2.74	1.54	0.122
Platelet (×10 <sup>9</sup> /L)	217.59±67.94	191.98±45.62	2.86	0.143
MCV (fl)	76.44±4.80	79.07±4.59	2.98	0.003*
MCH (pg)	25.52±2.10	26.76±2.19	2.95	0.003*
MCHC (g/L)	32.40±2.04	32.90±1.37	1.84	0.01*

\*P<0.05 is statistically significant. HBV: Hepatitis B virus, SD: Standard deviation, PCV: Packed cell volume, WBC: White blood cell, MCV: Mean corpuscular volume, MCH: Mean cell hemoglobin, MCHC: Mean cell hemoglobin concentration

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