

Hepatitis B Virus Surface Antigen Carriage Among Blood Donors in Ziguinchor, Senegal: Prevalence and Associated Factors

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Received date:

Accepted date:

Published date:

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Abstract

Introduction:

Methodology:

Results:

Center. T is a qualitative rapid test used for the detection of HBsAg in whole blood, serum or plasma. The membrane is pre-coated with anti-HBs antibodies (anti-HBsAb) on the test line (T) region of the strip. During testing serum or plasma containing HBsAg reacts with the particle coated with anti-HBsAb and generates a colored line. A control line (C) confirms the validity of the test. Results are available within 15-30 minutes. This test has a higher sensitivity (99.8% [98.6% -100%]) and specificity (99.2% [98.1-99.7%]) compared to a reference test as HBsAg Enzyme ImmunoAssay (HBsAg EIA). The sensitivity and specificity of HBsAg EIA are 97.8% and 97.9% respectively [4]. The manufacturer notes that the limitations of the test are that it is qualitative rather than quantitative and very low HBsAg concentrations (<1 ng/mL) cannot be detected.

Data were entered and analyzed with EPI Info 3.3.5 software. Chi-square or Fisher tests were used where appropriate and a p-value <0.05 was considered significant.

found to be carriers [9]. Hepatitis B is endemic in Senegal where the first contact with HBV occurs during the early years of childhood [5-8]. Previous studies have reported that up to 90% of the general population has at least one hepatitis B serologic marker [5,6,8].

Compared to neighboring countries in the region, the prevalence of HBsAg carriage in our study is comparable to the prevalence reported in the Ivory Coast (11-12.5%) [9], but lower than the prevalence reported in Mauritania (20.3%) [10]. The fact that HBV is highly endemic in this region necessitates more rigorous screening of blood donors and the use of highly sensitive tests. The use of other HBV markers such as Anti HBe and viral DNA would improve screening and reduce the risk of transmission [11]. In a recent study among blood donors in Nigeria, the prevalence of occult hepatitis B as determined by DNA testing was 17% [12]. Our findings demonstrate that high sensitivity screening of donated blood, including screening for occult HBV, is indicated in our population. This is of particular importance for individuals in need of repeated transfusions, such as those with sickle cell disease or renal insufficiency, who are at greater risk of transfusion related transmission.

Distribution of carriers by sex

In our study the rate of HBsAg carriage was higher among men (13%) compared to women (8.1%). A higher prevalence of carriage among men has been noted in other studies in the sub-region [9,10,13]. The male predominance may be the result of high risk exposures during recreational or professional activities.

Distribution of carriers by type of donor

We found that the prevalence of HBsAg carriage was significantly lower among regular voluntary donors compared to new blood donors in the M