FREQUENCY OF HEPATITIS B, HEPATITIS C AND HIV INFECTIONS AMONGST EMPLOYEES OF A UNITED NATIONS PEACE KEEPING MISSION

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ABSTRACT

Objective: To determine the frequency of HBsAg, anti HCV antibodies and anti HIV antibodies amongst UNAMID employees attending our dental clinics.

Study Design: Observational study.

Place and duration of study: This study was carried out at Pakistan Field Hospital Level III, Nyala, Sudan from 1 Oct 2011 to 31 Dec 2011.

Patients and Methods: All patients who were to undergo some dental surgical procedure had their HBsAg, anti HCV antibodies and anti HIV antibodies status checked by immunochromatographic technique prior to the procedure.

Results: Out of the 156 patients studied, HBsAg was detectable in 7.7% and anti HCV antibodies in 1.3% of the patients. None tested positive for anti HIV antibodies.

Conclusion: Hepatitis B and C infections do occur in our patient population. However, HIV infections are not seen.

Keywords: Hepatitis B, hepatitis C, HIV, United Nations

INTRODUCTION

Hepatitis B, hepatitis C and HIV are life threatening infections that pose a significant challenge to human health across the globe. Africa has been most affected by the HIV pandemic and has HBV and HCV prevalence only second to Asia[1]. Possible reasons for this high HIV prevalence include poverty, violence against women, cultural limitations that promote intergenerational sex, less frequent use of condoms, recreational drug use, high prevalence of sexually transmitted infections[2]. All these viruses are highly contagious and are transmitted by percutaneous and per-mucosal exposure to infected blood and other body fluids (i.e. semen and vaginal fluid). Since they have similar routes of transmission, co- infections are also common. Discovery of a vaccine against hepatitis B virus has been a giant leap towards reducing the prevalence rates. Moreover, efforts are on to reduce the morbidity and mortality of established diseases.

Prevalence rates of these infections around the globe are already well known, thanks to the innumerable studies done on this subject. However, our hospital provides care to people belonging to different nationalities and continents, representing a multinational conglomeration. So, the rates of infections in our dependent population are not known. We carried out this study to document the frequency of hepatitis B, hepatitis C and HIV in our clientele. This in turn is supposed to create awareness amongst fellow doctors about strict implementation of preventive measures during our dealings with the patients.

METHODS

This observational study was carried out at Pakistan Field Hospital- 3 Level III, Nyala, Sudan from 1st Oct 2011 to 31th Dec 2011. This hospital is working under the auspices of the African Union-United Nations Hybrid Operation in Darfur (UNAMID) and thus provides services to a diverse group of patients belonging to different countries. All patients (employees of UNAMID) who were to undergo a surgical procedure in the dental outdoor clinic and provided an informed

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Received: 30 Nov 2012; Accepted: 02 April 2013

written consent for inclusion in the study were enrolled. No specific exclusion criteria were applied. They were explained in detail the need for having viral serology checked before the procedure. Their age, gender, nationality and the nature of procedure were noted down. Every patient underwent hepatitis B surface antigen (HBsAg), anti- hepatitis C virus (HCV) antibodies and anti-HIV antibodies testing by immunochromatographic technique. Accurate One Step Test Device kits (manufacturer not labelled) were used, which provide the results for HBsAg in 15 minutes and for anti HCV and HIV antibodies in 10 minutes. The patients were provided dental treatment the same day after reviewing the results. For those testing positive for any of these tests, segregated sets of sterilized instruments were used and more emphasis was laid down on exercising universal precautions against possible spread of infection. Once these patients were free from the dental side, they were referred to medical specialist for further evaluation of abnormal results and specific management required. Data was analysed with PASW Statistics Version 17.

RESULTS

We collected data on 156 patients (142 male and 14 females) having a mean age of 32.00 ± 7.18 years. Most of them (29.5%) were from Nigeria. The ethnic distribution of the study population is shown in Figure-1. HBsAg was detected in 12 (7.7%) patients, anti HCV antibodies in 2 (1.3%) patients and anti HIV antibodies in none of the patients. Interestingly, all of these patients testing positive were males. No one had mixed hepatitis B and hepatitis C infection. Seropositivity results for different ethnic groups are depicted in Figure-2.

DISCUSSION

Today, the epidemics of hepatitis B and C infections are rampant all over the world. The prevalence rates have reached alarming limits. For example, an estimated 3.3% of the world population is infected with hepatitis C, though significantly higher rates have been reported for many African nations, including 14.5% in Egypt[3]. For hepatitis B, the availability of an effective vaccine has undoubtedly reduced the burden of the disease a bit, but still the figures are significantly worrying. The figures again are

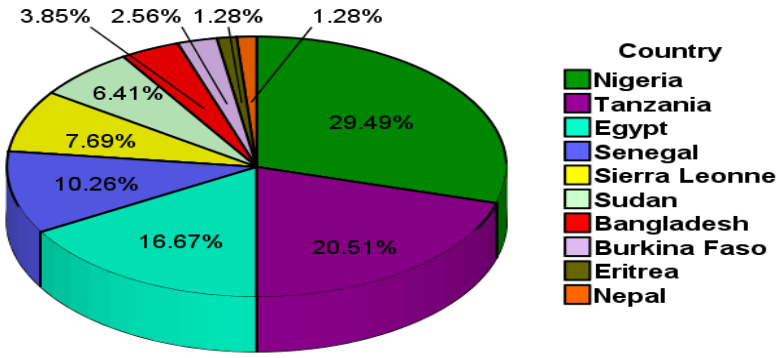

Figure-1: Ethnic origin of the study population (n:156).

higher in the developing world, with WHO describing HBsAg carrier rates of 10 to 15% in parts of Africa and Asia[4]. To add to this, a technical report of the European Centre for Disease Prevention and Control states that prevalence studies may underestimate figures in the general population due to inadequate representation of high-risk groups[5]. HIV does not lag behind in any way. While the rates are on an average approximately 0.8% around the world, figures jump up significantly for Africa, reaching upto 20.3% in South Africa[6]. The sub- Saharan Africa alone accounts for 67% of the global infections[7].

As if this was not enough, these infections continue to threaten the rest of the (non- infected) population. Spread is very easy, mainly blood borne and through the sexual route. There are certain groups/ subsets of individuals who are at an increased risk of acquiring the infections. Health care professionals are amongst this list[8]. contaminate other patients. In this regard, we arranged separate sets of instruments for patients infected with hepatitis B and C and paid special attention to effective sterilization of instruments after each procedure.

We used rapid immunochromatographic assays since they are cheap, simple and easy to perform even in our own dental clinics[9]. They give quick results, enabling on the spot decision making and provision of treatment on the same very day. According to the package inserts, our kits had a sensitivity of > 99%, 99.8% and > 99.9%, specificity of 96.7%, 99.9% and 99.6%, and accuracy of 98.3%, 99.9% and 99.7% respectively for HBsAg, anti HCV antibodies and anti HIV antibodies as compared to leading commercial enzyme immunoassays. The decision to confirm the positive results with ELISA was left to the discretion of medical specialist further evaluating and managing the patients.

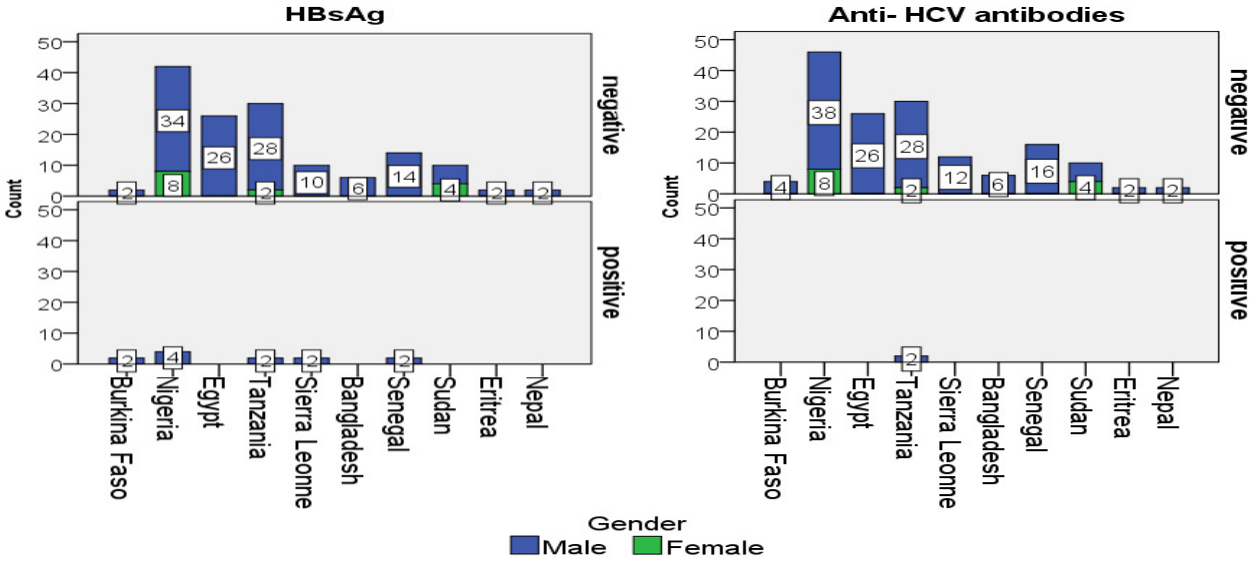

Figure-2: Frequency of HBsAg and anti- HCV antibodies in different ethnic groups (n=156).

Frequent exposure to blood and body fluids, which increases many fold during invasive procedures is the main underlying reason. The high stakes definitely merit exercise of purposeful preventive strategies. We adopted special measures not only to prevent ourselves but also ensured that we do not cross-

Our rates of infection are much lower than those quoted by other people in international literature. For instance, HBsAg carriage was nearly double in studies conducted in Central African Republic and Nigeria[10,11]. Similarly, prevalence rates for hepatitis C has been around 3% in contrast to our figures of 1.3%[12]. As far as

HIV is concerned, a study placed 2002 East African prevalence at 8.5%[13]. Due to selection biases, it is not essential for studies carried out in the hospital environment to reflect the prevalence of HBV in the general population[14]. Moreover, since people joining United Nations undergo screening for Hepatitis B/ Hepatitis C and HIV as a part of pre- induction medical checkup, lower rates are justified. The presence of infections in our patients means that different countries providing manpower to United Nations are probably not carrying out effective pre-departure screening.

A very little number of female patients (8.97% vs. 91.03% males) were enrolled in this study. This is because a significantly large portion of our dependent population consists of military peace keepers, who by default are predominantly male soldiers. Nevertheless, the fact that none of the females was infected with any of the viruses seems to be just a co-incidence. Their very small number could also be a contributing factor.

Not every prick transmits infection from the affected individuals. Hepatitis B transmission is reported at rates of up to 30% following a needle stick compared with 0.25% for HIV[15]. For hepatitis C, transmission rates vary from 3 to 10%[16]. Nevertheless, the fact that a definite risk does exist requires extra vigilance while dealing with affected individuals so as to not only prevent us from these deadly infections but also to safeguard the interests of other patients.

Our study is limited by its relatively small size. We appreciate that results obtained on a larger number of patients would have been more accurate, but the time available to us was relatively short. Still, the important positive impact of this research has been the assessment of actual prevalence rates in the UNAMID community, which have never been described in literature before. This is because these people come from different countries with different cultures, languages and norms and such a diverse population has never been studied in the past. The figures would be an eye opener for the doctors who will follow us here. Results of these studies can also be easily applied to patients attending other outdoor clinics in our setup.

CONCLUSION

Despite the requirement of pre-induction screening, hepatitis B and hepatitis C infections are encountered in our dependent clientelle. Health care professionals must therefore remain vigilant while handling these patients, so as to prevent spread of infection.Fortunately enough, HIV infection is not seen.

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