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Is it the time for Hepatitis E virus (HEV) Testing for Blood Donors in Qatar?

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Background

HEV is the etiologic agent of acute hepatitis E. Although HEV usually causes a self-limiting infection, the disease may develop into a chronic or fulminant form of Hepatitis. Sporadic HEV infections spread in several developed countries; however, outbreaks usually occur in regions where sanitation is low, in particular, in developing countries where water flooding frequently occurs. In addition, religious background, life style, hygienic practices, and the economic status have been linked to HEV infection. Fecal-oral is the established route of transmission, however, infections through blood transfusion were recently documented in many developed and developing countries. This recent finding raises the question: is there is a need for HEV screening prior transfusion or transplantation? Studies related to this issue, in the Middle East are scarce. Although the CDC HEV epidemiological map, classifies the Arabian Gulf countries including Qatar as endemic or highly endemic, to the best of our knowledge, no HEV population –based epidemiological study were conducted in Qatar. HEV infection is usually detected using IgM and IgG serological tests and confirmed by molecular tests for detection of viral RNA. Yet, commercially available HEV serological kits are not validated, and needs further investigation.

Aim and Methods

Qatar has a diverse population due to increased number of expatriate workers. The majority of these workers usually come from low economic status countries that are highly endemic for HEV such as Egypt, Sudan, India and other South East Asian countries. This fact highlights the need for an epidemiological study concerning HEV prevalence in Qatar. Accordingly, we hypothesize that HEV seroprevalence in Qatar is elevated, and therefore, there is a risk of HEV transfusion transmitted infections in Qatar's blood bank. The goals of this study are (i) to investigate the seroprevalence of HEV (anti-HEV IgM/IgG) among healthy blood donors in Qatar and (ii) to evaluate performance

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of 5 common commercially available anti-HEV IgG and IgM kits (manufactures by Wantai Biological Pharmacy, China; MP Biomedicals & Diagnostic Automation, USA; and Euroimmun & Mikrogen Diagnostik; Germany). All of these kits are solid phase ELISA based, except the Mikrogen kit which is immunoblot based. A total of 4056 blood donor samples were collected from healthy blood donors visited the Blood Donation Center at Hamad Medical Corporation (HMC) over a period of three years (2013–2015). For seroprevalence study, plasma were separated and tested for the presence of HEV IgG and IgM using Wantai ELISA kit, which, is the most commonly used serological kit according to literature. For statistical analysis, chi-square test was performed and results were considered statistically significant when the p-value were less than 0.05.

Results

Out of total 4056 analyzed samples, almost one quarter of blood donors, 829 (20.45%) tested positive for anti-HEV IgG and only 21 (0.52%) blood samples tested positive for anti-HEV IgM. As shown in figure 1, HEV seroprevalence was associated with age group (P