

Prevalence of hepatitis B virus and hepatitis C virus in health workers in 3 major hospitals in Aden, Republic of Yemen

*Ahmed S. Al-Jarba, MBBS, MD,
Waleed M. Al-Sayyari, Dip (Lab).*

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are common and serious viral infections affecting the liver. In significant number of patients, the disease develops into chronic liver disease, cirrhosis and hepatocellular carcinoma. In HCV, for example, there is a 20% chance of the affected person developing cirrhosis or hepatocellular carcinoma after a mean period of follow up of 20 years. Similar but less aggressive course has been reported with HBV. As much as 44.5% of cases of hepatic cancer are associated with HCV according to a report from Germany. The major route of transmission is blood, through blood transfusion or intravenous drug abuse,¹ or by contaminated parental injections of medicaments as occurred in Egypt. Hepatitis B virus is more infectious but its incidence has dropped markedly with the use of vaccination. As the blood route is essential, we felt that it would be useful to investigate the prevalence rates of these 2 viral agents in the workforce of 3 major hospitals in Aden, Republic of Yemen.

Blood was extracted from 576 hospital employees in 3 major hospitals in Aden (Al-Gamhorria Teaching Hospital, Aden General Hospital and Al-Wahdah General Hospital). The total number of employees in these hospitals was 1450 and we investigated 39.7%. Aden is the second largest city in the Republic of Yemen and it is the commercial capital. It has a population of approximately 750,000 and its residents generally represent the population of Yemen. The mean age was 31.1 years (range 16-57.8 years) and 51% were males. The majority tested was nurses (298) followed by doctors (94), technical staff (86), administrators (55) and maintenance staff (43). The method used for detecting HCV was enzyme immunoassay (enzyme-linked immunosorbent assay, third generation). In our hands, the sensitivity of the test was 92% and specificity was 100%. Hepatitis B virus was detected using enzyme immunoassay method. For comparative analysis, Student's t-test was used. For non-comparable parameter's Chi-square test was applied.

The vast majority of the cohort studied was in the age range of 20-39 years (80.5%). Virtually equal numbers of males (51%) and females were studied (49%). Interestingly, there were 2 peaks of HBV positivity at

the lower age range (10-19 years), higher age range (6.6%) and 50-60 years age range (20%). In the middle age range (20-39 years), the prevalence was only 3.8%. By contrast, all the cases found to be HCV positive were in the age range 39-49 years. Perhaps the opposite of what would be expected, the lowest HBV prevalence was found in the laboratory technician's group, even lower than that in the general population (1.3%). The highest prevalences of 9% were found in the x-ray and maintenance technicians. Doctors were 6.4%, nurses were 3.1% and administrators 7.3%. Conversely, most of the HCV positive found were in the doctors' and nurses' groups (80%). The overall prevalences of HBV and HCV were 5.5% and 1.3%. There was no effect of gender on the prevalences of HCV. Similarly, there was no effect of gender in the prevalence of HBV in our study being 5% and 3.9% in males and females (*p* value is not significant). A smaller group of hospital employees were studied in 1997 for HBV prevalence and found to be 3.4%. The increase to 5.5% in 2002 was not statistically significant.

The incidence and prevalence of HBV and HCV are variable from country to country. Hepatitis C virus incidence has been reported to be particularly higher in hemodialysis units in our countries, USA (8-36%), Europe (1-54%), South America (39%) and Asia (17-51%). The prevalences for HBV are also geographically variable (0.1-2%) in USA and Europe, 3-5% in Japan, Middle East and Latin America and 10-20% in China, Sub-Saharan Africa and South East Asia.

The literature suggests that there is no increased prevalence of HCV in health workers.³ However, needle sticks injury is an independent risk factoring the prediction of the presence of HCV.⁴ The average seroconversion rate following an accidental needle stick injury is 1.8-10%.⁵ Our findings confirm the low prevalence in our health workers. The chances of an HCV positive health worker infecting a patient is also very low (0.002%).⁶ Standard precautions (formerly known as universal precautions) should be used in all patients. This should include wearing gloves whenever handling blood or bodily secretions or excretions or contaminated equipment or needles and so forth. A mask, gown and eye protection gear should be used in any procedure likely to be associated with splashing.

In conclusion, the prevalences of HBV (5.5%) and HCV (1.3%) in the health workers in Aden are lower to that in the general population and that there has been no significant change since 1997. No differences were detected in genders. There was a higher prevalence of HCV in the middle age range and in the 2 ends of the age ranges in HBV. The findings concerning age distribution are similar to what has been reported previously.

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From the Faculty of Medicine, University of Aden, Republic of Yemen. Address correspondence and reprint requests to: Dr. Ahmed Al-Jarba, c/o Dr. A. Al-Sayyari, Armed Forces Hospital, PO Box 7897, Riyadh 11159, Kingdom of Saudi Arabia. Fax. +966 (1) 4791000 Ext. 3837.

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Erratum

In manuscript "Comparison of the growth standards between Saudi and American children aged 0-5 years" Saudi Medical Journal 2003; Vol. 24 (6): 598-602, the name of the co-author Mohamed K. Khalil should have appeared in the footer section as follows:
Medical Education & Research Center, King Fahd Specialist Hospital, Buraidah, Kingdom of Saudi Arabia.

Erratum

In manuscript "Strategy to improve road safety in developing countries" Saudi Medical Journal 2003; Vol. 24 (6): 603-608, in Table 4 the meaning of JD should have appeared as Jordanian Dinar.