

Prevalence of hepatitis B surface antigen in a Saudi hospital population

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Hepatitis B viral (HBV) infection continues to be endemic in many parts of the world particularly the developing countries. In the Kingdom of Saudi Arabia (KSA), the prevalence of HBV infection has fallen dramatically in recent years presumably and partly due to the availability and access to hepatitis B vaccination, the implementation of which was started vigorously in 1990 by the Ministry of Health. The overall current situation of HBV infection in all the provinces of KSA is far from being unambiguously clear and therefore the earlier impression of hyperendemicity in the Kingdom is not yet resolved.^{1,2} A retrospective study of HB virus infection in a well-delineated Saudi hospital population could add to the clarification efforts at determining an upward or downward trend in the infection prevalence. Observed changes in KSA, in HBV infection prevalence in a defined population, could be assessed in the light of enlightenment programs and awareness campaign activities on HBV infection in the Kingdom. The aim of this retrospective study was to find out the crude prevalence rate of HBV infection in a group of Saudi hospital patients and its implication in dental treatment in the hospital setting. The study, being part of a larger study, which included prevalence of HBC was a retrospective analysis of available data as found in the hospital records of the patients.

The hospital records of all in-patients as well as out-patients at Al Yamamah Hospital, Riyadh, who were referred to the medical laboratory of the hospital for hepatitis B surface antigen (HBsAg) positivity test from 1994 to 2007 were reviewed. The study did not recall the patients neither were the patients reviewed for the clinical reasons that necessitated referral for viral antigen detection test. Crude prevalence rate of infection in males and females were calculated and compared. The yearly trend of prevalence was correlated with the rising yearly hospital patients' attendance. Age-specific prevalence was not part of the aim of the study. For the period under study, there were 20,288 male and 59,570 female attendees at the hospital. During the same period, 2,445 were tested positive for HBsAg serologically. Of this figure, 27.6% were males and 72.4% were females (Table 1). The mean yearly percentage of positive test versus total number of attendees for males was 3.7 and for females 3.4. The figures were not statistically significant ($p=0.58$). In both males and females, as attendance went up yearly, there was a corresponding

decrease in HBsAg positivity in those sent for testing. The correlation between increasing attendance number and decreasing test positivity was negative at -0.9 and significant ($p=0.00013$) as shown in Figure 1.

Before 1990, KSA was considered as one of the hyperendemic countries for HBV infection. At the time, the crude prevalence of HBV infection in different provinces of the Kingdom ranged between 5% and 12%. The average overall prevalence was estimated to be 8.3%.³ In 1990, a nationwide vaccination program against HBV was introduced. A committee for the prevention of HBV hepatitis was constituted and an immunization program successfully began. The immunization apparently resulted in significant reduction of HBV infection among Saudi children with reports that the prevalence had dropped to 0.05%.⁴ In this retrospective study of the records of almost 80,000 patients, mostly women who were screened, the number of screened patients increased every year but the HBV infection correspondingly decreased among these patients. It could be inferred that a significant number of these patients benefited as adolescents, from the nationwide HBV vaccination program. The age bands of the patients were not determined in relation to the sustained yearly decrease in HBV infection rate because many age entries were missing in the records of those patients sent for HBsAg test. The spike observed in this study for 1994 was similar to the data in the reports

Table 1 - Total HBsAg positive test results over the total number of patients.

Year	Total		HBsAg		Percentage	
	Male	Female	Male	Female	Male	Female
1994	427	890	31	49	(7.3)	(5.5)
1995	415	894	24	54	(5.7)	(6.04)
1996	825	2517	37	109	(4.9)	(4.3)
1997	974	2884	51	144	(5.2)	(4.9)
1998	1601	4665	60	206	(3.7)	(4.4)
1999	1403	4248	70	136	(3.4)	(3.2)
2000	1203	5100	36	140	(3)	(2.7)
2001	1802	6159	49	144	(2.7)	(2.3)
2002	1925	6489	61	183	(3.2)	(2.8)
2003	1920	5477	49	140	(2.55)	(2.55)
2004	1604	4654	37	102	(2.3)	(2.19)
2005	1927	5047	39	104	(2.2)	(2.1)
2006	1760	5227	52	145	(2.9)	(2.7)
2007	2502	5319	79	114	(3.12)	(2.14)
Total	20,288	59,570	675	1770		

The mean percentage of male was 3.7 and female was 3.4, $p=0.58$

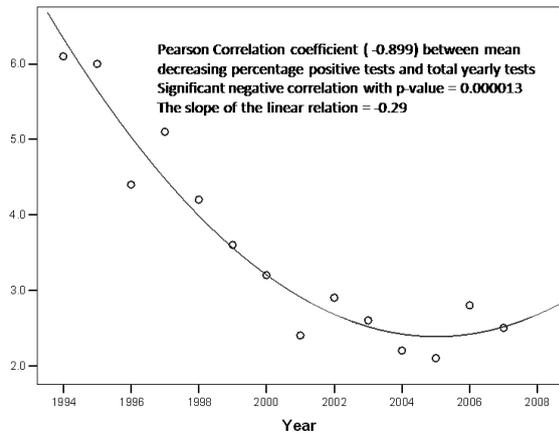


Figure 1 - Sustained yearly decrease of hepatitis B surface antigen (HBsAg) positive tests in males and females.

of Al Faleh¹ and Bashawri et al.⁵ The yearly prevalence continued to decline with no statistically significant difference between males and females although the clinical significance of the decline cannot be overlooked. Data from this preliminary study support, what was reported by Al Faleh¹ that KSA could now be considered as one of the low endemic areas of HBV infection. Al-Faleh¹ also observed that the Ministry of Health program of routine infant vaccination, mandatory vaccination of health personnel, availability of vaccine for the risk group and general health education and promotion were going to rapidly reduce HBV infection in KSA leading to its eradication. In the health professions, dentists and especially oral/maxillofacial surgeons are at a slightly higher risk of exposure to HBV than the general public. It is obvious therefore that with the continued downward trend of HBsAG positivity in several reports from KSA, the risk to health professional also continues to decline.

As a retrospective study, there were limitations which could not be addressed but which were not fatal to the conclusion that the yearly decline in HBV infection prevalence was real and significantly correlated with the increased number of screened patients over the same period.

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