

Letters to the Editor

Prevalence of Hepatitis B and C markers in patients on maintenance hemodialysis in Najran

Sir,

With the availability of hemodialysis, patients with end-stage renal disease (ESRD) are living longer than ever. In view of the high prevalence of diabetes mellitus (DM) and its evolving trend in the Saudi population,¹ the magnitude of ESRD might reach epidemic proportions in the future. The high prevalence of hypertension in this community also contributes to ESRD. It has long been known that hepatitis B is more common in patients on hemodialysis that was partly controlled by routine screening of blood for hepatitis B surface antigen (HBsAg) and by hepatitis B vaccination. With the advent of kits for testing antibody against hepatitis C (anti-HCV), it was also realized that hepatitis C is more common in this subset of the population.² This study was conducted on ESRD patients on maintenance hemodialysis in Najran, in order to find out the magnitude of positivity of anti-HCV and HBsAg in these patients now, so that it will serve as the baseline for a future reference. It will also help to complete the national level data in this country. This study was conducted on all the registered patients of the Artificial Kidney Unit (AKU) of Najran General Hospital in the month of Rabi-II 1421 (June 2000). This is the only Ministry of Health hospital with this facility in Najran Province, in addition to a very small setup in the town of Sharorah. All patients with renal failure are followed here and put on maintenance hemodialysis when required. We analyzed the data collected from all our patients currently receiving regular hemodialysis. Data was collected under the following headings; name, age, sex, nationality, duration on dialysis, blood transfusions received in the last 3 years, HBsAg and anti-HCV status, in addition to all routine

investigations. Hepatitis B surface antigen was performed using Auszyme Monoclonal by Abbot Laboratories and confirmed by neutralization method. Antibody against hepatitis C was carried out using Murex Anti-HCV (version 4.0) by Abbot Murex Laboratories. Positive cases were confirmed by immunoblot test using Chiron*RIBA*HCV 3.0 SIA having specificity of 99%. Standard statistical methods were used for calculating mean, standard deviation (SD) and significance value (p). We studied a total of 67 patients, currently registered in our unit receiving hemodialysis. It comprised of 37 males and 30 females (male:female ratio of 1.2:1). There were 29 Saudi males and 24 Saudi females. Fourteen non Saudis were Yemenis, except 2 Palestinians who were on dialysis for less than 6 months. Ages ranged from 13-66 years (mean 39+/-12.8 years) in males and 15-62 years (mean 38.51+/-11 years) in females. Distribution of patients in relation to age, HBsAg, positivity and Anti-HCV positivity is given in Table 1. Fourteen males and 9 females were positive for anti-HCV amongst Saudi's and 6 males and 2 females were anti-HCV positive in the non-Saudi group. Only 5 Saudi males and 2 non-Saudi males were HBsAg positive. The relation of anti-HCV positivity with 3 variables namely duration on hemodialysis, number of blood transfusions received in the past 3 years and age above 50 years is shown in Table 2. Hepatitis C has been reported all around the world as the main infection in ESRD patients causing considerable suffering in these already immunologically depressed patients. Prevalence rates ranging from 2.5% in Sweden to 29% in Portugal have been reported from Europe. Antibody against hepatitis C prevalence in patients on maintenance hemodialysis has been 25.5% in Jordan, 40% in Kuwait, 45% in Qatar, 35% in Sudan, 40% in United Arab Emirates (UAE), 80% in Egypt, and 35% in Morocco.³ There are many single center, multi-center and national level studies on prevalence of hepatitis C in dialysis patients in Saudi Arabia.

Table 1 - Showing distribution of patients in relation to age and hepatitis B surface antigen (HBsAg) and antibody against hepatitis C (anti-HCV) positivity.

Age in years	Total	Males (M)	Females (F)	Anti-HCV positive (M+F = Total)	HBsAg positive
<19	7	3	4	0 + 2 = 2	1
20-29	10	6	4	3 + 1 = 4	none
30-39	16	10	6	6 + 2 = 8	2
40-49	8	4	4	1 + 1 = 2	3
50-59	13	6	7	3 + 4 = 7	none
>60	13	8	5	5 + 3 = 8	1
Total (%)	67 (100)	37 (55)	30 (45)	31 (46)	7 (10)
Anti-HCV - antibody against Hepatitis C; HBsAg - Hepatitis B surface antigen					

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Table 2 - Showing relation of antibody against hepatitis C (anti-HCV) status to 3 different variables.

Variable	Anti-HCV positive Patients (n = 31)	Anti-HCV negative Patients (n = 36)	Significance p-value
Mean duration on hemodialysis +/- SD (in months)	46 +/- 12	21 +/- 9	P<0.001 significant
Number of transfusions received in last 3 years	0.3 per patient	0.4 per patient	P>0.05 non-significant
Age above 50 years versus below 50 years	15:16	11:25	P>0.001 Significant

SD - standard deviation; Anti-HCV - antibody against hepatitis C

Prevalence ranging from 15% to 95% are reported.³ In our patients, prevalence of anti-HCV positivity of 46% was seen, which is less than in 19 different centers in the Kingdom. Even those centers which show prevalence lower than our center, had a very small number of total patients. We strictly follow universal infection control precautions in our unit. We were unable to isolate anti-HCV positive patients due to multiple technical difficulties. Antibody against hepatitis C positivity was significantly higher in patients above the age of 50-years and in those who had a longer duration on dialysis. This supports the hypothesis that hepatitis C acquisition in dialysis units is not purely parenteral and other factors such as duration on dialysis (or in other terms, duration of immunological compromise) and age of the patients are more strong determinants of infection. There was no significant relation between the number of blood transfusion and anti-HCV positivity. In fact our anti-HCV negative patient had received more transfusions than anti-HCV positive patients. The possible reason could be that we had many new patients in this group who were initially given transfusions to stabilize them. Further, all our blood is routinely screened for anti-HCV. We had only 7 patients positive for HBsAg (10%). The reason for this low rate compared to anti-HCV could be that hepatitis B vaccination was started in Saudi Arabia around 10 years before as a part of a universal immunization program and we vaccinate all our new susceptible patients as early as possible. We isolate all our HBsAg positive patients. Disinfection methods have been studied and correlated with the propagation of hepatitis C in dialysis centers. We use the following disinfection procedures in our unit. (a) For HD-Secura machines, we perform decalcification using citric acid 50% for 21 minutes after every dialysis. Either chemical disinfection (by Puristeril 340 containing peracetic acid 3.5 grams and Hydrogen peroxide 100 grams) or thermal disinfection is then performed at the end of the day. (b) For Fresenius

4008 machines, chemical disinfection by puresteril is used after every dialysis and thermal citric acid every week. (c) For Cobe-century-III machines, acid rinse or Clorox disinfection is performed after every dialysis and formaline disinfection every week. It is well reported that neither strict universal precaution alone nor chemical disinfection coupled with heat at 80°C for 35 minutes, was enough to stop the march of seroconversion,⁴ therefore we try to keep all our new machines for strictly anti-HCV negative young patients.

In short, strict adherence to universal precautions combined with proper disinfection procedures are very important and together with keeping new machines for newly diagnosed anti-HCV negative patients and hepatitis B vaccination as early as possible might contain the spread of hepatitis C and B in ESRD patients.

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