Hepatitis C infection in dialysis patients

After beginning an anti-HCV screening program for dialysis patients in one health region in 1992, one hospital reported four patients with anti-HCV. The hospital raised concerns about transmission through its dialysis equipment. To identify the possible mode of of infection, a cross-sectional study was done.

All patients treated in the five renal dialysis units (RDUs) in the health region since January 1992 were identified. Patients with anti-HCV were identified by a screening program using a second-generation ELISA (Abbott) test. All medical records were reviewed and patients interviewed for symptoms and signs of hepatitis, history of transfusion of blood and its derivatives, other exposures (e.g., surgery), liver function test results and hepatitis B markers.

Eighty-nine patients had been treated in RDUs and tested for anti-HCV. Forty-four had anti-HCV (prevalence rate [PR]=49%). RDU patients with anti-HCV were more likely to have symptoms and signs of hepatitis than patients without anti-HCV. Patients with anti-HCV had a median SGPT of 178 IU, compared with 34 IU for patients without anti-HCV (P<0.01, Kruskal-Wallis test).

Patients with anti-HCV had been under dialysis for a median of 531 days, compared with 640 days for patients without anti-HCV (P=NS). RDU patients who had received three or more blood transfusions had a PR of 93%, compared with a PR of 4.5% in patients who had received fewer than three transfusions (Figure 1) (risk ratio [RR]=20.5, 95% confidence interval 5.3, 80).

Neither major nor minor surgery was associated with anti-HCV (RR=1.6; P=NS). Hospitals with a higher PR in RDU patients also had a higher PR in blood donors. The blood banks had only begun screening donors for abnormal liver function and for anti-HCV in 1992.

Reported by Dr. Mohammed S. Al-Qahtani (Field Epidemiology Training Program).

Editorial note: Blood transfusion, rather than a defect in renal dialysis units or machines, was responsible for hepatitis C infection in the dialysis patients. Blood banks should screen for abnormal liver function in addition to anti-HCV. Alternatives to blood transfusions for RDU patients need to be instituted.

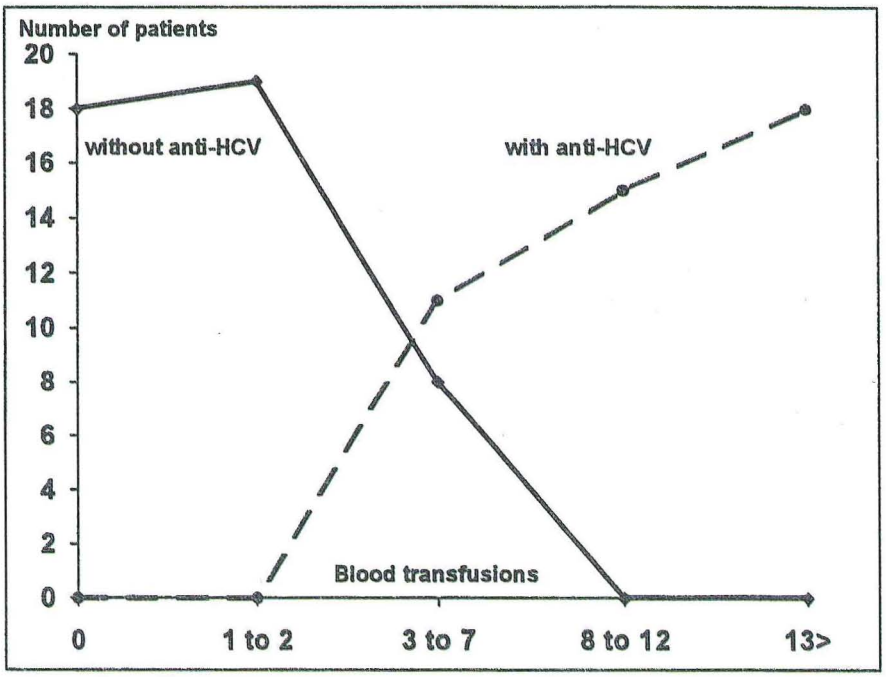

Figure 1: Blood transfusions and prevalence of anti-HCV

HCV is primarily a bloodborne agent, and it is believed to be the most common form of post-transfusion hepatitis. Neither sexual intercourse nor vertical transmission appears to be an efficient way for HCV to spread. Patients with renal failure are at high risk of HCV infection because of frequent blood transfusions. In the Kingdom there are 3266 patients on dialysis; 78% are Saudi (1). Other dialysis units in different health regions have also reported cases of HCV among their dialysis patients. In an effort to control the transmission, some kept one machine for the hepatitis patients only. This is not recommended because disposable dialyzers are used.

For the control of HCV in dialysis units we recommend the following (2):

- Patients positive for anti-HCV do not have to be isolated or dialyzed separately on a dedicated machine.
- Following universal precautions is the proper measure to control the infection.
- Patients should be monitored monthly for elevation in alanine aminotransferase and aspartate aminotransferase. Currently, elevation in liver enzymes is a more sensitive indicator of acute HCV infection than is anti-HCV.
- Routine screening of patients or staff for anti-HCV is not necessary for purposes of infection control because it cannot distinguish between chronic infection and infection that has resolved. Screening may be needed to determine prevalence or to determine medical management.

References

(1) Ministry of Health. Annual Health Report 1412/1413 Hejira. Riyadh: MOH, 1993: 223.

(2) Favero MS, Alter MJ, Bland LA. Dialysis-associated infections and their control. In: Bennett JV, Brachman PS. Hospital infections. Boston: Little, Brown & Co., 1992: 375-403.

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