Letters to the Editor

Nosocomial Infection and Pseudoinfection From Contaminated Endoscopes Could Have Been Avoided

To the Editor:

Recently, several outbreaks of nosocomial infection and pseudoinfection linked to endoscopes contaminated during cleaning and disinfection by automated reprocessing machines have been summarized.[1] Some automated endoscope reprocessing machines have the potential to become colonized with heterotrophic organisms, and this occurred between 1988 and 1990 in two machines manufactured by the Olympus Corporation (EW-10 and Auto-disinfector 2). At least three factors contributed to the problem. The design of the machines hampered their cleaning and decontamination, the detergent, disinfectant, and tap water were reused several times, and reservoirs and tubing of both machines remained moist or filled with fluid for extended periods, providing several sources for contamination and for recontamination during rinsing.

All these problems have been described in 1985 in the German literature.[2] Shortly after this report, Olympus Germany stopped marketing the EW-10 model. I consider it unfair, to say the least, that Olympus Corporation did not inform users in other countries in order to prevent possible life-threatening infections. It took almost five years (until April 1990) for the Olympus Corporation, at the request of the Food and Drug Administration, to mail a medical device safety alert to all consignees of EW-10. As the old Latins say, "*pecunia non olet.*"

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Hepatitis C Virus Antibodies in Patients on Hemodialysis

To the Editor:

In recent years, non-A, non-B hepatitis was the most common form of hepatitis in hemodialysis units. For this reason, the frequency of hepatitis C virus (HCV) infection in hemodialysis patients are thought to be high.[1] Factors associated with HCV infection in dialysis patients include the transfusion of blood products, duration and frequency of dialysis therapy, and contaminated dialysis equipment. However, the exact mechanism of transmission has not been identified, and there are contradictory data in the literature.[2]

To estimate the prevalence of HCV infection in this population, sera from 387 hemodialysis patients with chronic renal failure were tested for antibodies to HCV. The patients were selected from two hospitals in northern Spain. Two hundred twenty-two were males and 165 were females (mean age = 44 ± 29 years). Mean duration of hemodialysis was 48 ± 40 months (range=3 months to 19 years). Transfusion records revealed that 98% of the patients had received a transfusion, (mean = 8 ± 10 units, range = 0 to 102). None of the patients had a history of intravenous drug abuse.

Sera from the 387 patients were evaluated for anti-HCV by enzyme-linked immunosorbent assay (ELISA). Hepatitis B markers, HBsAg, anti-HBcAb, and anti-HBsAb were checked with radioimmunoassay (RIA) and ELISA. Stable titers were noted for cytomegalovirus (CMV) and Epstein Barr virus (EBV). Anti-CMV-IgM and anti-EBV-IgM were negatives in all the samples. The results of the anti-HCV tests were related to age, gender, time of hemodialysis, number of transfusions, hepatitis B markers, and the presence of liver disease in all patients studied. Data were analyzed by chi square with Yates' correction or Student's *t* test.

Seventy-one patients were positive for anti-HCV (18.3%). Seropositive and seronegative patients were similar regarding their age and gender. An analysis was made to determine whether the presence of anti-HCV and the presence of hepatitis B virus markers were related to each other. Out of the 19 patients who were HBsAg-positive, five of them were anti-HCV-positive and the remainder were negative. However, these results were not statistically significant. Among the 134 anti-HBcAb and anti-HBsAb-positive, 34 were anti-HCV-positive, and 100 were negative ($p < .01$).

Risk factors included blood transfusion and duration of hemodialysis treatment. The anti-HCV

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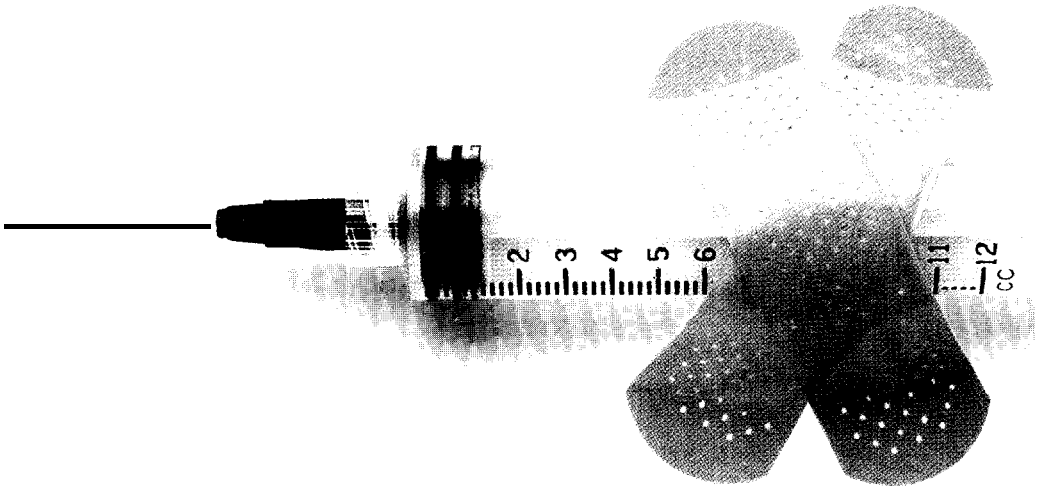

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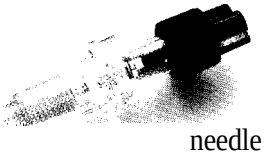

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TABLE
RISK FACTORS FOR HCV

	Anti-HCV-Positive (n = 71)	Anti-HCV-Negative (n = 316)	P
Male/female	42/29	180/136	NS*
No. units of blood transfused	12 ± 17	7 ± 7	<.001†
Months on hemodialysis	66 ± 45	45 ± 37	<.001†

* Not significant.
† The correlation (relative risk) between no. units of blood transfused and the time on hemodialysis = 0.65 ($p<.05$).

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positive patients received a higher number of transfusion units than the negatives (12 ± 17/7 ± 7, $p<.001$). Only one of the six who had not received transfusions was anti-HCV-positive. We also found differences in time on hemodialysis, which was longer in the HCV-seropositive patients (66 ± 45/45 ± 37, $p<.001$). There was a positive correlation between the numbers of transfusion units and the months of hemodialysis treatment (relative risk = 0.65, $p<.05$) (Table).

Sixty-five patients had persistent increases in aspartate transaminase (AST)/alanine transaminase (ALT) levels. Thirty-nine patients were anti-HCV-positive, and 12 were HBsAg-positive. These findings demonstrate that the majority of patients who developed liver disease on dialysis were anti-HCV-positive, indicating that HCV is the main cause of chronic liver disease in the hemodialysis population.

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