

*a series of articles
written by medical
professionals about
the management
and treatment of
hepatitis C*

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Hepatitis C and End-Stage Renal Disease

Background

Estimates of the prevalence of HCV antibodies in patients on hemodialysis (HD) range from 15-48% in North America (1). Prevalence rates are somewhat higher in other parts of the world, particularly in Egypt and Saudi Arabia. The incidence of HCV in HD patients is on the decline, probably due to blood product screening and tighter infection control measures in HD units. Similar to the case of HCV patients with normal renal function, the incidence of active viremia, as assessed by HCV RNA, is around 85% (2). Histologic activity is demonstrable in around 60% of patients on renal replacement therapy with anti-HCV (3). Unlike the non-HD population, in part because baseline ALT levels are depressed in patients on HD (4), 50-65% of patients with anti-HCV have normal aminotransferases (5). In fact, abnormal transaminases are seen in only 1/3 of those HD patients with biopsy proven hepatitis. Although the natural history of HCV infection in the HD population is largely unknown, liver failure is the cause of death in 8 to 28% of long-term renal transplant survivors (2).

Presence of anti-HCV in patients with end stage renal disease (ESRD) correlates well with multiple transfusions, time

on hemodialysis, history of IVDU and previous transplant (2). Prevalence of HCV is much more frequent in patients with ESRD on hemodialysis (30%) than on peritoneal dialysis (<5%). Based on the high prevalence of anti-HCV in dialysis units, nosocomial infection is coming under scrutiny. Homogeneity of HCV serotypes has been demonstrated in patients from the same HD center (6). Physical proximity of HD patients to an infected patient is a risk factor for seroconversion. Steps to reduce nosocomial infection in HD units, including single-use heparin vials, glove changes between patients, cleaning and disinfection of all instruments and environmental surfaces that are routinely touched and dedicated dialysis machines have been suggested to reduce the incidence of HCV. No particular type of dialysis membrane has been implicated in the spread of HCV. The CDC does not currently recommend dedicated machines, patient isolation or a ban on reprocessing of dialyzers.

Diagnosis of HCV in HD Patients

Some patients have a fluctuating pattern of viremia, with virus free intervals of up to 4 weeks (7). Third generation EIA assays appear to be able to re-

duce false positive and false negatives. Viral load, as measured by branched-chain DNA or quantitative PCR, is in the same range as non-HD patients. Genotype frequency also matches that of the non-HD population. Liver biopsy has been suggested in patients with ESRD and HCV, especially those undergoing evaluation for renal transplantation, since liver histology has been shown to correlate with outcome after transplant (8). Liver histology can be abnormal despite normal aminotransferases with high frequency in this group, so normal liver tests need not dissuade the clinician from recommending biopsy. There does not appear to be increased risk associated with percutaneous biopsy in the ESRD population. The routine use of vasopressin (DDAVP) prior to percutaneous liver biopsy has not been established as the standard of care.

Interferon Therapy in Hosts with End-Stage Renal Disease

Very few data exist on interferon therapy of HCV in the end-stage renal disease population. To date only a handful of small trials are available for review in the published literature. Initial response rates (ETR) are comparable to those of non-HD patients when the data are analyzed

assuming intention-to-treat. Sustained virologic response (SVR) rates have also been in the range of the series in non-ESRD patients. Data has emerged showing severe anemia in those ESRD patients receiving ribavirin, hence this indication is relatively contraindicated.

HCV After Renal Transplantation

Most HCV infection is transmitted before or during the time of transplantation, but the estimated risk of new infection following transplant is 0.45% per year (9). HCV can be transmitted in a renal graft but the rate of transmission is not well defined (10). Of those with HCV RNA, about 50% of patients develop abnormal transaminases after transplantation. Transplantation of an HCV(+) graft has not been shown to affect 5 year survival (2). Transplantation of an HCV(+) graft into an HCV(-) recipient remains controversial, since anti-HCV does not imply immunity, especially in a virus with the heterogeneity of HCV. Recent analyses have shown no difference in five-year survival between those HCV(+) recipients receiving HCV(+) grafts vs those receiving HCV(-) grafts. Pre-transplantation HCV is associated with an increased risk of post-transplant liver disease, but data on survival is mixed. Based on data that immunosuppression dramatically increases viral load (11), there is theoretical reason to believe that a significant rise in the incidence of hepatic morbidity and mortality will result in this population.

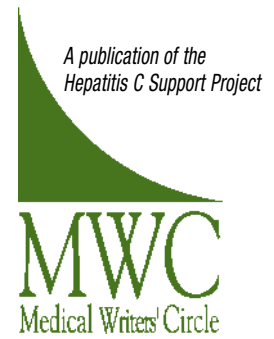
IFN in Renal Transplant Patients

Experience with the use of interferon alpha as an anti-CMV agent following renal transplantation was complicated by a high

incidence of steroid-resistant rejection and graft loss. An early attempt by Chan et al. to treat chronic hepatitis C in a transplant recipient with stable renal function met with virologic success, but the graft was lost 9 months after therapy (12). Another single case report of interferon use in a patient with combined HBV and HCV disease did not precipitate graft rejection, cleared HBV and led to a non-sustained virologic response for HCV (13). The largest series to date involves 16 patients, 37% of whom developed acute or subacute renal failure with IFN. Of these six patients (37%), 3 developed irreversible renal failure with diffuse interstitial edema leading to interstitial fibrosis (14). Based on these limited data, routine use of interferon for the therapy of HCV after renal transplantation should not be recommended. ■ ■ ■

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The Mission of the Hepatitis C Support Project is to offer support to those who are affected by the hepatitis C Virus (HCV) and HIV/HCV coinfection.

Support is provided broadly, through information and education, as well as access to support groups. The (Project) seeks to serve the HCV community as well as the general public.

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