

## A child with end stage renal failure with acquired hepatitis C infection who has undergone a successful renal transplant

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### Introduction

Although blood donors are routinely screened for hepatitis C virus (HCV), HCV infection is still highly prevalent in haemodialysis (HD) patients and renal transplant recipients<sup>1</sup>. HCV-positive renal transplant patients have decreased graft survival in comparison with HCV-negative renal transplant recipients<sup>2</sup>. Following renal transplantation, immunosuppression significantly increases HCV viraemia<sup>3</sup>. Though HCV can often be eradicated using pegylated interferon (PEG-IFN) and ribavirin (RBV) in patients with normal renal function, their use in HD patients has been condoned only recently. PEG-IFN alfa was chosen because it is cleared predominantly via hepatic metabolism<sup>4</sup>. We report a successful eradication of hepatitis C (type 6) infection in a child with end stage renal failure (ESRF) on HD before renal transplantation.

### Case report

A ten year old boy developed ESRF following posterior urethral valve. He was started on HD 3 years back and was found to have positive hepatitis C serology one year ago. At the start of HD he was negative for hepatitis C serology. Even though it is apparent that hepatitis C was transferred during HD, the contact was not found. His hepatitis C (type 6) viral load polymerase chain reaction (PCR) increased with time and liver biopsy showed features of inflammation without any chronic damage.

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He was listed for live related renal transplant and the prospective donor was his mother. He was started on combined therapy with PEG-INF and RBV in standard dosage regimen for one year. After 3 months following treatment the hepatitis C PCR was negative. At 6 months hepatitis C PCR remained negative but his haemoglobin started to fall. His iron supplementation and erythropoietin was increased two fold and folic acid was added.

At around 9 months of treatment, he found difficulty in walking with weakness and nerve conduction studies revealed axonal degeneration consistent with peripheral neuropathy. Treatment with PEG-INF and RBV was stopped and he was started on regular physiotherapy. After 3 months he showed marked improvement in walking and hepatitis C PCR remained negative. At that point he had a live related renal transplant from his mother.

He had an uncomplicated post-operative period and was immunosuppressed with tacrolimus, mycophenolate mofetil (MMF) and prednisolone. His hepatitis C PCR was monitored at 3 monthly intervals for the first year and then at 6 monthly intervals. After 2 years of renal transplantation he remained negative for hepatitis C PCR with a properly functioning renal graft.

### Discussion

Renal transplantation in a child with hepatitis C is a challenging goal. Chronic hepatitis C due to HCV genotype 6 is rare and is more often seen in Asians. Pegylated interferon plus ribavirin remains the treatment of choice for this genotype<sup>5</sup>. One study comprising 35 patients showed that haemodialysed chronic HCV patients awaiting renal transplant can be treated successfully with peginterferon alfa-2a (40 kDa) plus ribavirin<sup>6</sup>. All 35 patients achieved sustained virological response after 24 weeks of treatment-free follow-up<sup>6</sup>.

In our patient we used PEG-INF and RBV for 36 weeks before he developed peripheral neuropathy compared to previous study which used it for 24 weeks. Furthermore, we did not have the facility to monitor plasma concentration and the dose of ribavirin was not tailored according to haemoglobin

level. Therefore, we assumed that the peripheral neuropathy occurred due to the longer duration of therapy or due to high plasma level of ribavirin.

Another study done on this aspect found that sustained virological response was achieved in 59% of patients with genotype 6 patients following 48 weeks of standard therapy<sup>7</sup>. In our patient we achieved sustained virological remission after 36 weeks of therapy and following two years after renal transplantation with immunosuppression he still remained Hep C PCR negative.

This case demonstrates that PEG INF and RBV are effective in treating Hep C genotype 6 infection and patients with Hepatitis C can undergo successful renal transplant following adequate treatment of the disease.

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