

*Full Length Research Paper*

# **Comparative study between Hepotin (herbal formulation) and Interferon alpha 2b and Ribavirin in the treatment of Hepatitis C**

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**To study the therapeutic effect of herbal medicine in comparison with allopathic medicine for management of Hepatitis C. Two hundred patients with Hepatitis C were randomly assigned into two groups, 100 in each group. Test group was treated with herbal medicine, Hepotin and control group was treated with allopathic medicine; Interferon alpha-2b+Ribavirin. Comparison of data recorded by physician relating to these variables showed significant difference between test and control groups ( $p < 0.05$ ). The efficacy of the test treated medication (Hepotin) was superior as  $p < 0.05$ . Hepotin is more effective than the Interferon alpha 2b + Ribavirin in the management of Hepatitis C.**

**Key words:** Hepatitis C, hepotin, interferon alpha 2b, ribavirin.

## **INTRODUCTION**

Hepatitis C is of concern both to industrialized and developing countries. Therefore, the reduction of global mortality and morbidity related to chronic hepatitis C is of concern to public health (Lavanchy, 2009; Agboatwalla et al., 1994). Hepatitis C virus infects an estimated 170 million people worldwide. It is a major cause of liver cirrhosis, end-stage liver disease and hepatocellular carcinoma. It is also a leading cause of liver transplant in the developed countries. The virus is primarily transmitted parenterally, but there is significant mother-to-child transmission. Partly due to the virus's genetic diversity, it evades the host immune response and it has been difficult to identify candidate vaccines.

However, significant advances have been made in the treatment of chronic hepatitis C virus infection. Currently, the combination of pegylated interferon-alpha and ribavirin (RBV) is the standard treatment for chronic hepatitis C virus infection, and leads to long-term

eradication of the virus in approximately 54% of people. Treatment response is dependent on the infecting genotype, with 76 to 80% of those with genotypes 2 and 3, but only approximately 40% with genotype 1 or 4 achieving a sustained virologic response. Since treatment is expensive and associated with significant adverse effects, more effective strategies for the prevention of transmission are needed, especially in resource-limited countries, where the burden of disease is the highest (Pittsburgh and Butt, 2005). Despite rapid progress in our knowledge of hepatitis C virology and pathogenesis, but little is known about the treatment strategies to completely cure and wipe out this disease throughout the world. Careful understanding and assessment of hepatitis C both with conventional and alternative medicine to evolve better management of infected individuals and the prevention of complications.

However, achieving sustained virological response (SVR) in patients with chronic Hepatitis C (CHC) remains a challenge. Despite the use of PEG Interferon and Ribavirin (RBV), response rates in patients with genotype 1 remain at <50%. Although higher doses of Ribavirin

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(RBV) may improve sustained virological response (SVR) rates, its use is often limited by anemia (Shiffman et al., 2007). Blood transfusions is still the major cause of HCV transmission in Pakistan; as a survey of blood banks in the large urban centers of the country showed that, only about 25% of them tested blood and blood product donations for screening of HCV infection to cost down for screening and taking a harmful risk and increasing the transmission of HCV, which ultimately increases the global burden (Armstrong et al., 2000). A number of studies have shown the relationship between therapeutic injections using non-sterile needles and the transmission of HCV (Khan et al., 2000; Bari et al., 2001; Ahmed, 2006; Umar et al., 2000; Akbar et al., 2009; Muhammad and Sheikh, 2008).

## MATERIALS AND METHODS

### Study design

This is case control, direct unicenter evaluation based study, conducted on the patients living in the Gadap Town adjacent Madinat-al-Hikmah, Hamdard University Shifa-ul-Mulk Memorial Hospital Karachi, Pakistan. The subjects were selected by simple random sampling technique. Patients with complaint of Hepatitis were registered. Detailed history was taken from every patient and only those were selected who were willing to give written consent and would fulfill the inclusion criteria. The study was approved from medical ethics committee of the Faculty of Eastern Medicine, Hamdard University Karachi.

### Patients

Two hundred patients with positive anti-HCV results were selected based on detectable RNA-HCV (RT-PCR) of genotypes 1a, 1b and 3a. The study was carried out on the patients of ages between 20 to 55 years in the period of 3 years. Patients were included in the study irrespective of their socio-economic status at outpatient department in Shifa-ul-Mulk-Memorial Hospital, Karachi. The patients were divided in control and test group. Control group received allopathic treatment Interferon + Ribavirin and the test group received herbal medicine Hepotin.

### Setting

The therapeutic evaluation of these medicines was carried out after the diagnoses of Hepatitis C on clinical and biochemical parameters at Shifa-ul-Mulk Memorial Hospital, for Eastern Medicine, Hamdard University. The patients were registered from the general O.P.D. and hospitalized at the clinical research ward of the hospital. All the patients selected for the study, were thoroughly examined and their clinical history was recorded.

### Sample selection

The principle sampling methods used for the purposes of this research study was random sampling. The sample was selected from the outpatient department registered and enrolled in Shifa ul Mulk Memorial Hospital and on the basis of inclusion and exclusion criteria of the patients fulfilling the Hepatitis C criteria as candidates were selected. The study period included was from 2007 to 2010.

Among this population, all the patient suffering from Hepatitis C were interviewed immediately and upon their consent to participate, they were grouped as test and control groups

### Data collection

Data collected for this research work included filling of clinical trial proforma through personal interview, personal observation, use of case records, file and documents. The designed clinical trial proforma specifies the clinical feature and information to be filled by the physician for record and utilized in statistical assessment.

### Statistical analysis

Statistical analysis were performed using SPSS and excel software, the Chi square test was determined. All differences were considered statistically significant by generating a 'p-value' from test statistics. The significant result with 'p-value' less than 0.05 was considered as statistically significant

### Inclusion criteria

The cases suffering from only Chronic Hepatitis C were selected on the following lines:

1. Patients between age group of 20 to 55 years.
2. Patients having no obvious pathological findings on routine examination.
3. Patients living in Karachi, Pakistan.
4. All socio-economical classes including lower, middle and upper.

### Exclusion criteria

The cases suffering from chronic medical illness were excluded on the following lines.

1. Patients with concurrent physical illness for example uncontrolled hypertension and diabetes or other complication of chronic Hepatitis C like esophageal varises, ascites bleeding disorders etc.
2. Patients having hyper pyrexia (103°F or more).
3. Patients having liver abscess.
4. Patients with hepatic or renal impairment and cardiac disorder. Patients previously treated with Interferon Alpha 2b and Ribavirin.

## DISCUSSION

Infection with Hepatitis C virus causes chronic infection in about 85% of those infected, and among those chronically infected, cirrhosis may eventually develop in from 5 to 20% individual. Estimated 250,000 people die annually, of HCV related disease. Pakistan is currently home to around 13 million patients suffering from Hepatitis C. The overall prevalence of the disease in Pakistan is around 10 to 15%, in some areas, such as the Seraiki belt (lower Punjab and upper Sindh), this prevalence increases to around 40 to 50% (Agboatwalla et al., 1994). In Pakistan, about 75% of patients do not receive conventional anti HCV therapy (Interferon + Ribavirin) and of the 25% that do receive such treatment, the sustained virological response (SVR) rate is 60 to 70%. Studies conducted recently in Karachi show 43.06% seropositivity in chronic liver diseases and cirrhosis combined, with 45.7% cases of chronic liver disease and 37.7% cases in cirrhosis.

**Table 1.** Comparative data of Hepotin tablets and Interferon Alpha 2b and Ribavirin (Anorexia).

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	75	25	0.01
Interferon Alpha 2b and Ribavirin	9	91	

**Table 2.** Comparative data of Hepotin tablets 2 with Interferon and Ribavirin in heart burn.

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	71	29	0.00
Interferon Alpha 2b and Ribavirin	5	95	

**Table 3.** Comparative data between Hepotin tablets with Interferon Alpha 2b and Ribavirin in epigastric pain.

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	84	16	0.00
Interferon Alpha 2b and Ribavirin	29	71	

**Table 4.** Comparative data between Hepotin tablets with Interferon Alpha 2b and Ribavirin in body-ache.

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	71	29	0.00
Interferon Alpha 2b and Ribavirin	25	75	

The mortality pattern pertaining to chronic liver disease (CLD) in Northern Pakistan. The burden of HCV related chronic liver disease (CLD) in Pakistan has increased many fold. Earlier studies showed that, of all patients presenting chronic liver disease, 16.6% were anti-HCV positive (Chohan et al., 2001) more recent data shows nearly 60 to 70% patients, with chronic liver disease tending to be positive for anti-HCV (Gross et al., 1994). It has been given in citation that, nearly 50% of patients with hepatocellular carcinoma (HCC) in Pakistan are anti-HCV Khan et al., 2002. In 1994, a cross sectional study done in children revealed that 3% were HBsAg positive. The sero-prevalence of HCV in children appears to be low in Pakistan, with 0.2 and 0.4% children infected under the age of 12 and between 12 to 19 years respectively (Hamid et al., 1999).

## RESULT

Hepatitis C is quite prevalent in both developing and developed countries. Therefore, the global mortality and morbidity related to chronic Hepatitis C poses a serious threat to public health around the globe. In Pakistan, Hepatitis C is taking its toll on patients in Pakistan and those that cannot afford conventional treatment are usually treated with traditional medicine and those who can afford it are being offered the conventional treatment. The drug of choice in conventional treatment are anti-HCV therapy (Interferon + Ribavirin) and of the 25% that

do receive such treatment, the sustain virological response (SVR) rate is 60 to 70%. However, the traditional regime to treat Hepatitis C are many and varied but those who were treated with conventional therapy exhibited 43.06% seropositivity in chronic liver diseases and cirrhosis combined, with 45.7% cases of chronic liver disease and 37.7% cases in cirrhosis (Asif, 2005).

## Clinical response

Comparative data of Hepotin tablets, Interferon Alpha 2b and Ribavirin, obtained in anorexia, heart burn, epigastric pain, body-ache, indigestion, burning micturition, fever, burning palm and sole, biochemical and serological responses are shown in Tables 1 to 12.

## Conclusion

Hepotin was more effective than Interferon Alpha 2b + Ribavirin and has fewer side effects like nausea and vomiting. It was concluded that Hepotin is effective for treatment of Hepatitis C because of its efficacy, and desirable tolerance. Hepotin is preferred to Interferon

**Table 5.** Comparative data of Hepotin tablets with Interferon Alpha 2b and Ribavirin in indigestion.

Level of improvement	Complete improvement	Not improved	P-value
Hepotin tablets	75	25	0.00
Interferon Alpha 2b and Ribavirin	5	95	

**Table 6.** Comparative data of Hepotin tablets with Interferon Alpha 2b and Ribavirin in burning micturation.

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	79	21	0.00
Interferon Alpha 2b and Ribavirin	30	70	

**Table 7.** Comparative data of Hepotin tablets with Interferon Alpha 2b and Ribavirin in fever.

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	87	2.5	0.00
Interferon Alpha 2b and Ribavirin	13	87.5	

**Table 8.** Comparative data of Hepotin tablets with Interferon Alpha 2b and Ribavirin (burning palm and sole).

Level of improvement	Improved (%)	Not improved (%)	P-value
Hepotin tablets	71	29	0.01
Interferon Alpha 2b and Ribavirin	5	95	

**Table 9.** Comparative data of Hepotin tablets and Interferon Alpha 2b and Ribavirin in ALT.

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	79	21	0.5
Interferon Alpha 2b and Ribavirin	72	28	

**Table 10.** Comparative data of Hepotin tablets and Interferon Alpha 2b and Ribavirin (BUN).

Level of improvement	Affected (%)	Not affected (%)	P-value
Hepotin tablets	0	100	0.4
Interferon Alpha 2b and Ribavirin	10	90	

**Table 11.** Comparative data between Hepotin tablets and Interferon Alpha 2b and Ribavirin (Creatinine).

Level of improvement	Affected before treatment (%)	Not affected after treatment (%)	P-value
Hepotin tablets	0	100	0.4
Interferon Alpha 2b and Ribavirin	10	90	

**Table 12.** Comparative data between Hepotin tablets and Interferon Alpha 2b and Ribavirin.

Level of improvement	Complete improvement (%)	Not improved (%)	P-value
Hepotin tablets	48	52	0.24
Interferon Alpha 2b and Ribavirin	55	45	

### Alpha 2b + Ribavirin in the treatment of Hepatitis C.

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