Summary
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- A total of 1012 samples were collected and assessed in this study.
- 512 were from liver disease patients and 500 were apparently healthy age and sex matched control.
- Clinically the samples were of acute liver disease (127), chronic liver disease without cirrhosis (156), cirrhosis (85) and others (144).
- 281 of the clinical cases were male and 231 were female.
- Equal number (250) of male and female samples were from control.
- The patients were from the age group between 11 to 61 and above.
- Samples were collected from September 2003 to December 2006.
- 20/512 (3.9%) were positive for anti HCV IgM by ELISA.
- None of the control samples were positive for anti HCV IgM.
- 29/245 (11.8%) were positive for HCV genome by RT PCR indicating the strong association between HCV and liver disease.
- Cirrhosis cases showed high incidence (9.4%) of anti HCV IgM.
- None of the acute liver disease cases were positive for anti HCV IgM.
- Anti HCV IgM positivity was more among male than female.
- 41-50 years of age group showed higher incidence of anti HCV IgM (5.3%).
- Samples collected during July 2005-December 2005 showed higher incidence of anti HCV IgM.
- RT PCR showed higher incidence of HCV genome among cirrhosis cases (6.6%).
5.3% of the female of this study group were positive for HCV genome by RT PCR and it was double than that of male.

None of the clinical cases of age group 41 - 50 years were positive for HCV genome.

Patients of age 61 years and above showed 20% positivity for HCV genome.

Incidence of HCV genome during the study period was found to be high during July to December 2004 and July to December 2006.

Prevalence of HCV was found to be highest among liver cirrhosis (14.1%) followed by chronic liver disease (8.3%).

Patients of age group 31 - 40 years showed 6.2% positivity for HCV.

The samples collected during July to December in all three years viz. 2004, 2005 and 2006 showed higher incidence of HCV and was found to be statistically significant (p<0.01).

Out of the six major HCV genotypes discovered worldwide, HCV genotype 3 was the predominant one (41.3%) in this study followed by HCV genotype 2 (31%) and HCV genotype 1 (24%).

8 (1.5%) cases of this study were found to have HCV and HBV infection together (p < 0.05).

6 (1.9%) were positive for both HCV and HIV.

Among the 512 liver disease patients the prevalence of HBV (HBsAg) was 9.5% (49) and 7 (1.4%) out of the 500 apparently healthy age and sex matched individuals without any signs and symptoms of liver disease was also found to be positive for HBV (p<0.01).

Prevalence of hepatitis delta agent (HDV) among liver disease patients in this study was 2.3% (12/512).

The prevalence of HIV in the liver disease patients of this study was 5.2% (27).
Incidence of HCV was high during the study period July 2005 to December 2005 where as HBV and hepatitis delta agent prevalence was high during September 2003 - December 2003 and HIV during January 2004 - June 2004.

The HBV marker profile in liver disease patients showed that HBsAg was the predominant marker found among this study followed by Anti HBe (0.7%), Anti HBs (1.1%) and Anti HBe (0.7%). In addition to the presence of individual HBV markers some of the patients serum sample had more than one HBV marker i.e Anti HBc and Anti HBe (0.7%), HBsAg, HBe Ag and Anti HBc (0.3%) and Anti HBc and Anti HBs (0.3%).

The liver function test on liver pigment (bilirubin total, direct and indirect), liver enzymes like SAP, ALT, AST, GGT and albumin in different liver disease patients of this study revealed marked differences.

In HCV positive patients, elevated levels of all the LFT markers were seen and the variation was highly significant.

LFT of virally coinfected patients also was elevated and were statistically significant.

Overall, bilirubin direct & indirect and AST in HCV patients differ from patients with other viral coinfections.

There was no difference in the levels of bilirubin total, SAP, GGT and albumin among the HCV patients and other coinfections.

ALT level was found to be normal in HCV positive and other viral coinfected patients.

All the three plant extracts inhibited the HCV genome and that was evidenced by lack of band formation in the gel.

All the three plant extracts found to possess immunomodulatory activity of human PBMC by DEM, SRB and MTT.

Elevated level of IL2 production also supported the immunomodulatory nature of the plants.
- None of the plant extracts found to have hepatotoxic effect on rat hepatocytes

- Reasonably good quantity of major nutrients like carbohydrates, proteins and minor nutrients like minerals were present in all the three plants

- Secondary metabolites like flavonoids, steroids, terpenoids and cardiacglycosides were present in all the three plants

- TLC analysis showed the presence of various compounds in all the three plants tested

- IR spectra suggested the presence of functional groups like OH, C=O and CN in all the three plants tested

- GC MS analysis showed the presence of squalene in *Boerhavia diffusa* and *Eclipta alba*. In *phyllanthus amarus* the major compound present is Carissanol dimethyl ether.