Scope & Plan
3. SCOPE AND PLAN

3.1 PREVALENCE PATTERN OF HEPATITIS C VIRUS INFECTION IN ASYMPTOMATIC PREGNANT WOMEN

While Hepatitis B virus infection in symptomatic and asymptomatic population has been well characterised in many countries of the world, HCV infection pattern in general population is yet to be completely documented. This is mainly because of the fact that mandatory screening of blood donors is still not fully implemented in many developing and underdeveloped countries. The Hepatitis C virus infection scenario in India is also similar and hence incomplete. Even though equating prevalence of anti-HCV positivity among voluntary blood donors with general population is not ideal, the data available in India mainly represents voluntary blood donors and pregnant women (Sumathy et al., 1993; Arankalle et al., 1995; Choudhary et al., 1995; Ghuman et al., 1995; Jaiswal et al., 1996; Panigrahi et al., 1997; Gosavi et al., 1997; Kumar et al., 1997; Elavia et al., 1999; Goswami et al., 1999; Ganju et al., 1999). Overall anti-HCV positivity varied from 0.3 - 4.0 % as seen from these reports. This has necessitated the need for immediate well-designed surveys to understand the pattern of HCV infection in different strata of general population. Since pregnant women form a major source of HCV transmission to their off-spring if they are infected, the first part of the study was planned to analyse the rate of HCV infection in healthy asymptomatic pregnant women attending the antenatal check-up programme in Government hospitals of Chennai, Tamilnadu. It was also planned to characterise the pattern of HCV infection in anti-HCV positive pregnant women.
3.2 PATTERN OF HCV TRANSMISSION FROM HCV INFECTED MOTHERS TO CHILDREN BORN TO THEM: A PROSPECTIVE STUDY

The overall risk for vertical / perinatal transmission of HCV is about 5%. However, vertical transmission has been shown to be facilitated, when HCV RNA levels are high in the mother or in the presence of concomitant HIV infection. In India, there has been very limited studies on HCV RNA status of the mother and there is no long term follow-up study to understand the vertical / perinatal transmission of HCV. Hence the second part of the study was planned to study the maternal viraemic status and a well designed long term follow-up study for the period of atleast one year, to understand the HCV vertical transmission rate in India.

3.3 GENOTYPE ANALYSIS OF HCV RNA POSITIVE MOTHERS AND BABIES BORN TO THEM

Genotype analysis of HCV RNA positive mother and child assumes significance in the context that, it is necessary to establish the genome sequence homology between RNA positive mother and child to prove vertical transmission. The identification of the genotype is necessary for the right choice of drug and for effective treatment. Occurrence of the same genotype of the HCV in mother and child pairs has proved vertical transmission of HCV in various studies conducted around the world (Goldberg et al., 2001). However there has been no report on HCV genotype characterisation associated with vertical transmission in India. Thus the third part of the study was planned to establish the HCV genotype homology between the HCV viraemic mothers and their children.
3.4 MOLECULAR SEQUENCING OF HCV GENOTYPES AND COMPARISON WITH THE RESULTS OF LINE PROBE ASSAY METHOD.

While rapid methods are presently available to genotype viral isolates like HCV, it is always necessary to confirm the rapid screening techniques with molecular sequencing methodology which is the "Gold Standard". Hence the final part of the study concentrated on sequencing of the HCV RNA samples of HCV positive mother: child pairs.