8. CONCLUSION

The present study has generated significant knowledge on:

(i) The epidemiological & exposure pattern of chronic HBV infection in the children and adult population of Tamil Nadu.

(ii) Epidemiological and exposure pattern of asymptomatic HCV infection in the children and adult population of Tamil Nadu.

(iii) Characteristics of subjects with asymptomatic chronic Hepatitis B virus infection.

(iv) The family clustering pattern of chronic HBV infection in HBsAg indexed carrier and non-carrier families.

(v) Purification methodologies of Hepatitis B surface antigen and it's immunogenicity in animal models for possible application in hepatitis B vaccine production.

(vi) Reproducible clinical efficacy of treatment with an Indian medicinal plant, *Phyllanthus amarus* in chronic HBV.

8.1. A 5.7% rate of chronic HBV infection in the adult population of Tamil Nadu reflected that Tamil Nadu belongs to the intermediate HBV endemicity zone. The fact that only 1.86% of the school going children are HBsAg positive denotes that a large pool of HBV carriers acquire the virus by non vertical modes like horizontal, parenteral etc. A graphic analysis of HBV exposure
pattern from 0-45 years has further confirmed that the median HBsAg carrier rate of 5% gets established by the age of 16-20 yrs. while the lower age groups had lesser levels of HBV infection.

8.2. Risk factor analysis has pinpointed unsterile needles and family contact as the significant routes by which the population might have acquired HBV besides the vertical route of HBV transmission. The signal that is given by this analysis is with regard to intervention strategies that are to be adopted by the Government Public Health authorities singularly pointing to infection control at every level.

8.3. The scenario of HCV infection prevalence in the general population though less severe (1.08%) at present, remedial measures by mandatory Anti HCV screening in blood banks are strongly indicated as the urgently needed risk reduction strategy. Interestingly a similar level of HCV exposure rate was seen in children too. The fact that Anti HCV positivity is seen in children of above eight years old indicate that vertical transmission of HCV in Tamil Nadu is either absent or negligible.

8.4. The results of the present study seem to indicate that HBV infection established itself early in childhood and get compounded during early adult
hood. However, asymptomatic HCV infection seems to establish during the later years of childhood followed by adult life.

8.5. 17.3% HBeAg positivity and 41.5% HBV DNA positivity in HBs Ag positive carriers indicate the higher level of infective HBV carrier pool in the Tamil Nadu population. HBV DNA positivity in HBeAg negative subjects suggests the circulation of precore / core mutants in the HBV carrier population. This observation if substantiated by gene sequencing shall pose additional cause for anxiety in HBV control. These baseline information should also be taken into account while introducing childhood immunisation against HBV in India.

8.6 Intrafamilial clustering of HBV has been well documented in the present study confirming the significant risk of acquiring HBV from an indexed HBsAg carrier within a family. If the indexed carrier happened to be of infective nature (HBeAg positive), the HBV transmission rate to the other family members seem to be higher. This study is added evidence to recommend HBV vaccination to the family members of an indexed HBsAg carrier.

8.7 Purification of HBsAg by the method of Mishiro et al., (1980) is the most suitable method of purification. The method of Govender et al., (1985) is
simpler and easier to perform. Small-scale purification of HBsAg can be done by the method of Govender et al., (1985). Plasma derived purified HBsAg elicits a good anti HBs response in rabbit and goat models and can be used as candidate vaccines.

8.8 *Phyllanthus amarus* as a candidate antiviral drug for chronic Hepatitis B is being studied from different parts of the world. The present study while reproducing similar levels of treatment efficacy like the previous clinical trials conducted at the Department of Microbiology, University of Madras, underscored the need for using a bio-typed strain of *Phyllanthus amarus* as a source material for the drug preparation. The study further proved the high safety profile of the medication. It might be worthwhile at this point to venture on to the exercise of conducting multicentric clinical trials within and outside India.