

CHAPTER V

CONCLUSION

The first aim of this study is about the determination types of immunoglobulins eluted from filter paper strips and compare those with serum collected by syringe. It was found that the filter paper strips are good enough to absorb blood samples because when the antibodies were eluted the immunoglobulin parts (IgG and IgM) were eluted too. So the antibody titers which were detected were reliable.

The next part of this study is to compare the titer of antibody eluted from filter paper strips and from syringe. When compared between syringe and filter paper method which kept at 4°C for 2 weeks it was found that most of the syringe titers were lower than filter paper titers. At the same time of storing, the titers of filter papers which were kept at 4°C were higher than those which were kept at room temperature. At the different time of storing, the titers of filter papers were lower and lower according to the time of storing. The best condition of storing blood dried filter paper was at 4°C. Higher temperature at room temperature will cause a deterioration of the antibody titers.

About the higher titers of the filter paper method compare with those of syringe method which kept at the same condition (time and temperature), it was found that this caused from the error in absorbed volume of absorbing part of the filter paper strip. From this study, if we need a serum dilution 1:20 we should add a 1.2-1.4 ml PBS (female) or 1.2-1.6 ml PBS (male). But from the filter paper strip description it said that if we need a serum dilution 1:20 we must add a 0.8 ml PBS. This made a great variation in titer between syringe and filter paper method because the HI-titer of the filter paper may be shifted to the higher dilution.

The last was the study about the effect of imitated transportation condition on the titer of antibody absorbed on filter paper strips. It was found that the filter paper strips which took 3-8 days of transportation had no different in titer of antibody, and those which took 11-12 days of transportation had only 2-fold dilution lower. It showed the practical value of filter paper strips that even sent in the climatic condition, exposed to both temperature and humidity, the titer of the eluates did not change much even took a long time of transportation.

The great advantage of these techniques described in this report, particularly under field conditions, not the least of which may be simplicity in obtaining, handling, shipping and storing of refrigerated or frozen serum samples. This study was made to investigate the applicability of the method using blood in the assay of antibodies against dengue infection.

The paper absorption method was found to be applicable to serological survey work. It eliminated many of the problems (such as bacterial spoilage, chemical denaturation, or breakage of glass vials) associated with the handling and shipping of fluid serum samples. Under the circumstances described, antibody is fairly stable, and little change in titer occurs after several weeks of storage at 4° C.

The collection of blood is easily performed with a minimum of equipment, requiring small amounts of peripheral blood collected from a lancet puncture on a piece of filter paper which then may be placed in an envelope, transported in one's pocket or by mail, and subsequently stored at 4° C in a desicator. After collection of blood, the papers may be handled manually without strictly aseptic precautions. Surprisingly enough, no appreciable degree of contamination has occurred in our hands, and the lack of necessity for using more stringent techniques further facilitates the procedure.

One disadvantage of this method is that obtaining sufficient blood to saturate the filter paper is not always easy, and frequently is time-consuming. However, experience often overcomes this difficulty and the specimen thus obtained provides more than enough material for quantitation of antibody.

During the course of this studies there was generally good acceptance of this procedure by subjects (which sometimes have a little complain) and by the parents of infants and small children, in contrast to venipuncture which was more likely to be refused. Moreover, lancet puncture can be readily carried out by nurses or other assistants.

Good agreement among repetitive tests, however, was found to occur when the variation in dose is limited to a 3 - to 4 - fold range.

From these experiments it may be concluded that for the surveillance of dengue virus infection the collection of finger tip blood by filter paper method seems to be quite satisfactory for determining the antibody formation by hemagglutination inhibition test.