Summary

The rabies vaccines derived from nervous tissue have been superseded in purity, potency and safety, by vaccines prepared in cell cultures. The tissue culture vaccines however, are still not freely available in developing countries due to the high cost. Cell culture vaccines have been prepared in either primary cells such as chick embryo fibroblasts, hamster kidney and dog kidney or in continuous cell lines like human diploid cells or vero (monkey kidney) cells. The purified duck embryo vaccine though not considered as a cell culture vaccine, has also been clinically accepted for human use.

In Sri Lanka though tissue culture vaccines have been used for rabies post exposure treatment since 1986, no studies have been done to evaluate the antibody response in these vaccinees. For rabies post exposure therapy at present, the regime referred to as the 2: 1:1 schedule is followed in government hospitals. In this regime, 2 doses of vaccines are given intramuscularly, one on each deltoid on day 0 and one dose on day 7 and a fourth dose on day 21. This modified regime has been recommended by the World Health Organisation (WHO) for use in the developing countries (Vodopija, Ljubiccic, Baklaik, Svjtlicic and Smerdel 1988).

Twenty five patients who received post exposure anti rabies cell culture vaccine at the General Hospital Colombo were randomly selected for this study. These patients were administered the purified chick embryo cell (PCEC) rabies vaccine using the 2: 1: 1 schedule. Two blood samples were collected from each of these patients ; the pre - vaccination sample was collected on day 0 just before the vaccine was administered and the post-vaccination sample was collected on day 50 (30 days after the last dose of vaccination). Serum was separated and stored at -20 ^{0} C until time of testing.

Mouse neutralization test (MNT) was performed on the pre and post-vaccination sera, to determine the sero conversion rate following vaccination. This test also can be used to determine the presence of protective antibody levels. Rabies challenge virus strain (CVS) supplied by the WHO was initially titrated by inoculating 3-4 weeks old mice intracerebrally with 0.03 ml of the virus dilutions and the titre was determined by the Reed and Muench method (Lorenze and Bogel 1973). From these results the virus dilution that contained 100LD50/0.03ml was calculated.

According to the WHO, a minimum antibody concentration of 0.5 IU/ml in serum is essential for protection against rabies infection (WHO). This is equivalent to a serum dilution of 1: 16. Therefore, a serum dilution of 1 in 16 was used in the present study. If the antibody concentration in this dilution, neutralised the acceptable challenge virus dose of 40 - 70 LD50 / 0.03ml the serum was considered to be protective against rabies infection.

Results obtained in this study after statistical analysis showed that all vaccinees not only had 100% sero conversion but also had protective antibody levels $\geq$ 0.5 IU / ml against rabies. Therefore, the 2:1:1 schedule used for post exposure anti rabies vaccine therapy in government hospitals of Sri Lanka has been proved to evoke adequate protective antibody levels against rabies.