CHAPTER V

Summary

This study is a prospective clinical and immunological study of serum sickness in recipients of equine rabies immunoglobulin (ERIG) as well as a study to investigate the clinical significance of immediate (IgE) skin testing prior to the administration of ERIG

131 patients with history of potential rabies exposure who required the administration of ERIG and rabies vaccine were initially included in this study. Before the administration of ERIG, IgE (immediate) skin testing with ERIG was performed. 19 out of 131 (14.5 %) patients were skin test positive, 4 (3.05 %) had borderlined skin test and 108 (82.44 %) were skin test negative. ERIG was given to all of these patients even the skin test was positive because they could not afford to buy human rabies immune globulin (HRIG). From our study, it revealed that immediate skin test before the administration of ERIG was an invalid procedure in predicting the adverse out come of the administration of ERIG since there was no any adverse reactions in any of the skin test-positive recipients. Therefore, it is irrationale to recommend the use of HRIG in patients with positive ERIG skin test because of the unnecessary financial wastage. However, a positive

skin test may make the physicians and nurses more cautious during the administration of ERIG.

Sequential serum specimens from day 0 to day 14 were collected from these patients and analysed for C_3, circulating immune complexes (CIC) and heterophile antibody. Sera of 29 patients were omitted from analysis because they did not complete the follow up on day 7 or day 14.

For serum sickness, 2 out of 131 (1.5%) patients developed clinical symtoms of serum sickness, one on day 6 and the other one on day 9. These two patients had negative heterophile antibody and negative CIC. C_3 levels of one serum sickness patient were within normal limits throughout the 14 day of observation whereas those of the other patient were low on day 14. This latter patient had serum sickness started on day 9.

Of the 100 patients who did not develop clinical serum sickness, 45 (45 %) had positive heterophile antibody, characteristic for serum sickness by differential absorption. Sixteen had decreased C_3 level (i.e., lower than mean - 1SD of normal C_3 values) on day 0. 7 in the heterophile antibody - positive group and 9 in the heterophile antibody - negative group. Eighteen had elevated CIC

levels (i.e., higher than mean + 1 SD of normal CIC levels) on day 0, 9 in the heterophile antibody-positive group and 9 in the heterophile antibody - negative group.

Another group of 16 patients who developed full blown serum sickness following the administration of ERIG were also included into the study. They were similar to the patients in the prospective study except no sera were obtained on day 0. Twelve (75 %) were heterophile antibody positive, 5 (31.25 %) had low C_3 level and 3 (18.75 %) had elevated CIC level. This parallel study underlines the significance of heterophile antibody in the diagnosis of serum sickness. If this is the case, the finding of heterophile antibody in 45 out of 100 asymtomatic recipients of ERIG may signify the occurence of subclinical serum sickness in a sizable fraction of recipients of equine immunoglobulin.

The analysis of C_3 and CIC levels is not sensitive enough to reflect serum sickness. This discrepancy may be due to the relative insensitivity of the assay systems or due to the subtle changes in these immunologic parameters.