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INTRODUCTION

IL-18 is a pleiotropic cytokine that plays an important role in both innate and adaptive immunity. Its function is mainly reflected in the enhancement of T cell activated monocytes to induce IFN- γ production and both Th1- and Th2-driven immune responses. Studies demonstrated that mice with a single intramuscular immunization with recombinant rabies virus expressing IL-18 elicited the highest titers of serum neutralizing antibodies, significantly higher IFN- γ responses and increased of TCD4+ and TCD8+ lymphocytes. The objective of the present study was to evaluate the expression of IL-18 in the meningeal, perivascular and intraparenchymal microenvironments from central nervous system (CNS) of the patients who died from rabies transmitted by domestic dogs, as well as, the expression of the IFN- γ and the number of the B+ and TCD4+ lymphocytes.

METHODS

Using the immunohistochemical technique, CNS samples from ten rabies patients treated at Emílio Ribas Infectology Institute from 1966 to 1982 were immunostained for anti-IL18, anti-IFN- γ , anti-CD20 (B lymphocytes) and anti-TCD4 antibodies and subsequently quantified with the aid of a 1cm² graticule, coupled an ocular 10x and an objective 40x. The results were expressed as number of cells per mm².

RESULTS

No statistically significant differences were found in the number of B and TCD4+ lymphocytes in relation to the CNS microenvironments. About IL-18 (intraparenchymal x meningeal $p < 0.0001$ / intraparenchymal x perivascular $p = 0.0006$) and IFN- γ (intraparenchymal x meningeal $p = 0.0020$ / intraparenchymal x perivascular $p = 0.0002$) were found statistically significant differences. However, in general, was not observed high expression of these cells and cytokines in our casuistic.

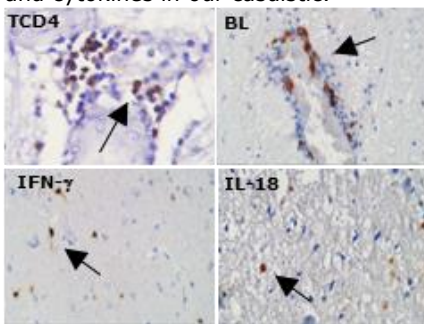


Figure 1. Immunohistochemistry for cells and cytokines. Magnitude 400x.

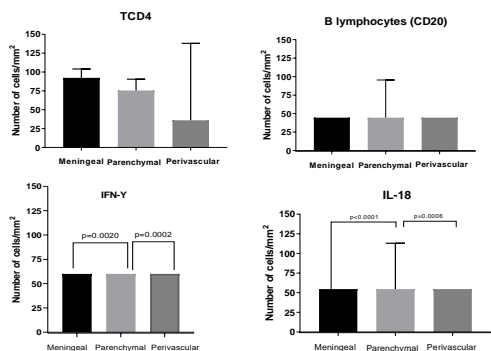


Figure 2: Statistical analysis. Non parametric Kruskal-Wallis test.

CONCLUSION

It is known that both humoral and cellular immune responses are important to resolve rabies virus infection and that possible survival of host after neurological manifestations depends on the production of neutralizing antibodies intracerebrally. It's suggest that the low expression of IL-18 contributed to a low expression of IFN- γ , impairing the activation of TCD4+ lymphocytes and their collaboration with B lymphocytes to produce neutralizing antibodies at the site of infection.

REFERENCES

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