TITLE: FGF-β AND IL-13 EXPRESSION IN HEPATIC LESIONS OF HUMAN FATAL CASES INFECTED BY YELLOW FEVER VIRUS

AUTHORS: MENDES, C. C. H.[4]; OLIVEIRA, L.O.D.[1]; MIRANDA, V. S. C.[1]; OLÍMPIO, F. A.[3]; CARVALHO, M. L. G.[1]; SOUSA, J. R.[1,3]; FERREIRA, M. S.[1]; QUARESMA, J. A. S.[1,2]

INSTITUTION:
[1]SAARB/IEC/MS – Seção de Arbovirologia e Febres Hemorrágicas, Instituto Evandro Chagas, Ministério da Saúde (Ananindeua, Pará, Brasil);
[2]SAPAT/IEC/MS – Departamento de Patologia, Instituto Evandro Chagas, Ministério da Saúde (Ananindeua, Pará, Brasil);
[3]UFPA/NMT – Universidade Federal do Pará, Núcleo de Medicina Tropical (Belém, Pará, Brasil);
[4]UEPA/CCBS – Universidade Estadual do Pará, Centro de Ciências Biológicas e da Saúde (Belém, Pará, Brasil).

ABSTRACT:

The yellow fever virus (YFV) is a non-contagious arbovirus, transmitted by arthropods (mosquitoes and ticks), which causes the yellow fever disease (YFV), and to be present more than 44 countries endemic and zoonotic. Brazil faced major outbreaks of YF in several states, from 2016 to 2018, transmitted by mosquitoes of the Haemagogus and Sabethes genus. The success of infection due to factors such as the complex modulation which causes in the immune response of the host. The FGF-β cytokine is described in literature having a key role in cell proliferation, differentiation, migration, and angiogenesis of multiple cell types along with the IL-13. These cytokines participating actively in the process of wound healing, tissue regeneration mediated injured, but no account of these cytokines in livers from human fatal cases was described earlier. After these facts, the purpose of this study was to quantify the FGF-β and IL-13 expression in human livers infected with YFV. In this study, 21 human liver samples were used from health surveillance of the Evandro Chagas Institute (IEC). Statistical analysis was performed using the GraphPad Prism 5.0 program, applied the one-way ANOVA tests, Turkey pos-test and the Pearson correlation coefficient with a significance level of 5% ($p \leq 0.05$). We observed a significant IL-13 and FGF-β expression, mainly in the zone midzonal along with Kupffer cells. Considering that both cytokines are essential for mediating the healing process, we demonstrate which the FGF-β and IL-13 cytokines participate actively in the differentiation and activation process of Kupffer cells with phenotype M2 which can inducing tissue repair and be required due to the phenomenon of cell death that occurs in the liver parenchyma of the human fatal cases infected by YFV.

Keywords: Yellow Fever, Physiopathology, cytokines.

Development Agency: SAARB/IEC/MS – Seção de Arbovirologia e Febres Hemorrágicas, Instituto Evandro Chagas, Ministério da Saúde.