

TITLE: HISTOLOGICAL COMPARISON OF CLINICAL AND STANDARD STRAINS OF *SHIGELLA* FROM AMAZON REGION

AUTORS: SOUZA, R. M^{1,2}, SERRA, P. T², MONTEIRO, R. T², SERCUNDES, M³; ORTOLAN, L³; DEBONE, D³; EPIPHANIO, S³, ENCARNÇÃO, A.K.L.⁴; SUMITA, T.C.⁴; ORLANDI, P. P²

INSTITUTION: ¹UFAM – Universidade Federal do Estado do Amazonas (Av. General Rodrigo Octávio, 6200 - Coroado I, Manaus - AM, 69077-000), ²FIOCRUZ ILMD – Instituto Leônidas e Maria Deane (Rua Terezina, 476. Adrianópolis. Manaus - AM. CEP: 69.057-070.), ³ USP São Paulo – Faculdade de Ciências Farmaceuticas; 4- INPA - Instituto Nacional de Pesquisa do Amazonas – Biotério Central

ABSTRACT

The diarrheic diseases are very common in developing countries and *Shigella* species are part of these enteric pathogens. Its mechanism is based on invasion of human gut epithelium and promotion of tissue damage. There is no effective treatment against *Shigella* and the more impaired patients may develop other complications such as septicemia. During 2007 to 2009 we isolate 30 clinical *Shigella* strains from children ranging of 0 to 10 years old with diarrheic symptoms at Manaus (AM) public hospital. Molecular characterization of these isolates shown diverse virulence profiles. This study propose the murine infection of these clinical strains in comparison with standard *Shigella* strain M90T intending to evaluate the immune response and tissue damage. The strains used were clinical strains #14 and #27, characterized with low and high virulence profile by molecular techniques respectively. These clinical strains, negative control and standard strain M90T were inoculated intranasal at 7 to 12 weeks old BALB/C mice. The animals had its temperature and weight followed at during the experiments and after 48h infection, they were euthanized and the bronchial alveolar lavage (BAL) technique was applied. The lungs were removed to conduct histological slides. As results, we had the 48h infection time as representative of the acute phase of *Shigella* infection in mice. Weight monitoring demonstrate significant weight lost at M90T standard and #27 clinical strain in comparison with non-infected mice ($P < 0,001$, $P < 0,05$, respectively). Clinical strain #14 had the same weight pattern of non-infected mice in agreement with its low virulence profile. At BAL non-infected animals shown macrophage predominance with few polymorphonuclear cells (PMN) while M90T standard had massive PMN infiltrated and low macrophage. Clinical strain #27 had the same cellular pattern of M90T standard. At histological slides, clinical strain #27 had tissue damage with presence of hemorrhagic area similar to tissue damage displayed at M90T standard. This study evaluated the virulence profile of two clinical *Shigella* strains isolated at Amazon region at cell recruitment and tissue damage. Clinical strain #27 had the higher virulence profile, similar to M90T standard. *Shigella* characterization are rare at Amazon region and studies like this are helpful to elucidate the *Shigella* profile and its action mechanisms in Amazon region.

KEYWORDS: *Shigella*, Murine Infection, Clinical Strains, BAL, Histology

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