Comparison of physiological, cytopathogenic and immunological properties between two environmental isolates of Acanthamoeba spp.

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Abstract

The aim of this study was to determine whether pathogenic and less-pathogenic isolates of environmental Acanthamoeba exhibit differences in adhesion to human erythrocytes. Based on physiological properties of temperature, tolerance, and rapid growth, Acanthamoeba were divided into pathogenic and less-pathogenic isolates. Acanthamoeba were tested for their ability to produce cytopathic effects (CPE) using two human cell lines, HEp-2 and KB cells. Both ameba isolates caused CPE to both cell lines with the same pattern without significant difference. Human erythrocytes from 20 healthy volunteers were used to study the erythrocyte reactivity of Acanthamoeba by co-incubation with trophozoites. The pathogenic Acanthamoeba exhibited significantly higher erythrocyte adhesion as compared to the less-pathogens (p<0.05). Erythrocyte activity occurred in the presence of plasma in all blood samples, suggesting the role of plasmatic components and contact-dependent mechanisms to produce host cell cytotoxicity. The present results showed correlation between the physiological properties and erythrocyte reactivity of Acanthamoeba.

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