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Effect of *Cryptosporidium parvum* infection on DNA damage and cytokines gene expression in blood of immunocompromised mice

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There are few data regarding the genotoxic and immuno-modulatory effects of Cryptosporidium parvum (Family: Cryptosporidiidae) infection in vivo. Therefore, the present study evaluated the effect of Cryptosporidium parvum infection on DNA and gene expressions of interleukin-6 (II-6) and tumor necrosis factor- α (TNF- α) in blood of the immunocompromised mice. Fifty adult male Swiss albino mice were used in the present study; these were randomly divided into five groups (10 mice/each group) as follows: group I served as a healthy, uninfected control group; groups II-IV were immunosuppressed by dexamethasone, and uninfected, or infected (orally) with 3.0×10^3 (low dose) or 1.0×10^4 (high dose) Cryptosporidium parvum oocysts, respectively; group V did not receive dexamethasone and infected with 1.0 104 Cryptosporidium parvum oocysts. DNA damage of leucocytes was assessed by flow cytometry and comet assay; the gene expression of the cytokines was performed using real-time polymerase chain reaction. The results revealed that infection with the low or the high dose of Cryptosporidium parvum induced DNA damage in the leucocytes of the immunosuppressed mice, as revealed by the elevations in tail length and tail moment of the comet assay compared with the healthy and immunosuppressed, uninfected, mice. In addition, significant decreases and increases in the expression of Il-6 and Tnf- α genes, respectively, were recorded in leucocytes of the immunosuppressed, Cryptosporidium parvum-infected mice in comparison with the healthy and immuno-suppressed, uninfected, mice. In conclusion, Cryptosporidium infection induced DNA damage and augmented the changes induced in the IL-6 and TNF- α gene expressions in the leucocytes of the immunosuppressed mice.

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