

NOTA PRÉVIA

EFFICACY OF LEUKODEPLETION FILTERS IN REMOVING *T. CRUZI* FROM CONTAMINATED BLOOD

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Measures adopted to prevent transfusion-associated Chagas' disease (TA-CD) include clinical and serological screening of the blood donors, and/or inactivation of *T. cruzi* in collected blood using gentian violet (GV) as a trypanocidal agent. The knowledge that leukodepletion filters (LF) are able to remove virus and bacteria from blood products, opened perspective to evaluate their use in preventing protozoal infection. Thus, in this study, we investigated the efficacy of LF in removing *T. cruzi* from infected blood.

Human whole blood was infected with either 2 or 150 *T. cruzi* organisms (Y strain) per ml, and then left non-filtered or filtered using LF that provided either 2 log₁₀, 3 log₁₀, or 6 log₁₀ leukocyte removal. The efficacy of removal of the parasites by the LF was evaluated by the microscopic enumeration of active circulating forms of *T. cruzi* either 6 and 14 days after the intraperitoneal inoculation of 1 ml of infected blood into Swiss mice, or 30 and 60 days after inoculation of 1 ml of contaminated blood into culture medium (Liver Infusion Tryptose - LIT), using the microhematocrit technique.

The median number of parasites observed in mice inoculated with non-filtered blood infected with 150 parasites/ml was significantly higher than

the median number of parasites seen in mice given infected blood filtered by LF providing either 3 log₁₀ (p < 0.001), or 6 log₁₀ (p < 0.03) removal. Similar results were obtained in experiments in which mice were inoculated with blood infected with 2 parasites/ml.

Similarly, the median number of parasites observed in culture of non-filtered blood infected with 150 *T. cruzi*/ml was significantly higher than that seen in culture of filtered blood with 6 log₁₀ filter (p < 0.001). When the concentration of 2 parasites/ml was used, the median number of parasites was significantly lower in blood filtered with either 2 log₁₀ (p = 0.001), 3 log₁₀ (p < 0.001) or 6 log₁₀ (p = 0.009) than seen in non filtered blood.

The present data provide evidence that LF are effective in reducing the level of *T. cruzi* from infected blood, and that the removal is dependent upon the concentration of the parasites. Based on this preliminary results, we conclude that it is possible that the use of LF associated with other strategies may reduce the risk of TA-CD. Further studies may determine the clinical benefit of such an approach prior to its implementation to prevent TA-CD.

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Recebido para publicação em 23/06/94.