

Effect of Interferon- α Immunotherapy, Combined with Albendazole on The Integrity of Hydatid Cysts' Germinal Epithelium: Experimental Study

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ABSTRACT

Medical treatment for human hydatidosis may be the only therapeutic opportunity for those facing problems to perform surgical interventions or because the infection is widespread or anatomically inaccessible. Medical treatment depends on albendazole and mebendazole which are the only drugs that can effectively inhibit the growth of *Echinococcus* larvae, but unfortunately, failure of such medicinal strategy is repeatedly documented. Immunotherapeutic agents such as cytokines are one of the therapeutic modalities that can enhance the efficacy of albendazole by promoting an effectual immune response. Therefore, the aim of the current study was to assess the effect of INF- α immunotherapy, in combination with albendazole on the integrity of the germinal layer of hydatid cysts, using a mice model. 4',6-Diamidino-2-phenylindole (DAPI) blue fluorescent staining was used to reflect the level of regeneration within the germinal epithelium. The cysts related to a group of mice treated with albendazole showed a significant reduction in number (73.02%), compared to the control group ($P < 0.05$). Yet the group that received combined therapy showed dramatic changes and the best reduction rate (94.29%). DAPI stain reflected a vital sign, denoting cellular damage within the germinal layer with extremely low expression 1.8 ± 2.1 in the group treated with combined therapy, in comparison to control 49.6 ± 11.7 ($P < 0.05$). While albendazole reported an expression of 17.04 ± 5.3 , denoting its ineffectiveness in radically destroying the germinal layer. Administration of INF- α as adjuvant immunotherapy, in combination with albendazole is recommended for medical therapy of hydatid disease, especially in cases where surgical interventions are difficult or represent a serious risk to the patients. Further study concerning the uses of different treatment doses and durations is highly recommended to confirm the effect of the combined immunotherapy with the anti-parasitic drug.