

## Selected cytokines and morphological parameters of blood in patients with *Giardia intestinalis* or *Toxoplasma gondii*

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The study was performed in 48 patients infected with *G. intestinalis*, 40 infected with *T. gondii* and 40 healthy controls. Serum concentrations of IL-5, IL-6 and IL-12 and number of eosinophils, platelets, as well as their morphological parameters, were determined. Significantly higher concentrations of serum IL-5 in patients infected with *G. intestinalis* and *T. gondii* vs. control group were observed (respectively:  $X=5,10\pm 2,70$ ,  $X=7,02\pm 2,97$  vs.  $X=3,59\pm 1,59$ ,  $p<0,05$ ). The same was observed with IL-6 concentration reaching the level of statistical significance with controls in comparison with patients infected with either parasite. The highest mean IL-6 concentration was observed in patients infected with *G. intestinalis* ( $X=6,11\pm 4,80$ ), however *T. gondii* infected patients ( $X=5,98\pm 3,10$ ) have also significantly higher IL-6 when comparing with control group ( $X=2,45\pm 1,44$ ). Concentration of IL-12 was significantly lower in the patients infected with *G. intestinalis* and *T. gondii* in comparison with the controls. The lowest mean IL-12 concentration was present in giardiasis patients ( $X=63,15\pm 22,57$ ), slightly higher in patients infected with toxoplasmosis ( $X=88,82\pm 13,62$ ), but highest values was noted in the controls ( $X=98,16\pm 26,20$ ). Significant differences were also observed in eosinophils number between Giardia and other study groups ( $p<0,05$ ), with highest number in Giardia ( $X=2,53\pm 1,71$ ), lower in controls ( $X=1,58\pm 1,11$ ), and the lowest in toxoplasmosis group ( $X=1,50\pm 1,10$ ). No differences have been found between the study groups when evaluating platelets number and their mean volume (MPV). However, we found that in both parasitic infections the platelet-large cell ratio (LPLT) and the platelet size deviation width (PDW) were significantly higher ( $P<0,05$ ) than in controls group. To compare percentage of large platelet (LPLT) were observed, that in both *G. intestinalis* and *T. gondii* group the number of megathrombocytes were statistically significant increased. Significantly higher levels of IL-5 and IL-6 in the parasite infected patients might reflect the immunological activation of host organism. Influence of *G. intestinalis* infection is evident when evaluating differences in higher concentration of IL-6, lower concentration of IL-12 and higher number of eosinophils. In the course of toxoplasmosis were reported higher concentration of IL-5, increasing rate of anisocytosis and higher number of megathrombocytes.