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O1199 Performance of a new whole-blood test for detecting reactivation of echinococcal cysts

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Background: Human cystic echinococcosis (CE), a widespread parasitic zoonosis, is diagnosed by imaging and serology, but the diagnostic performance of the latter is poor, especially in the post-treatment follow-up. In the attempt to overcome this limitation, we set up a whole-blood stimulation test based on Interleukin (IL)-4 detection by ELISA in response to the parasite Antigen B (AgB), to distinguish active from inactive cysts. The aim of this study is to evaluate the performances of the whole-blood test in discriminating cyst viability and in detecting cyst reactivation.

Materials/methods: The test was performed at baseline (T0) in 67 patients with liver CE staged according to WHO-IWGE classification: 30 had CE3b cysts (viable, active cysts); 37 had spontaneously inactivated CE4 cysts (non-viable, inactive cysts). After enrolment, 6 patients with CE3b cysts received albendazole, resulting in cyst solidification (CE4) in 4 of them. However, it is known that CE3b cysts treated with albendazole almost invariably reactivate over time. The whole-blood test was repeated after 1 year (T1) in 9 patients in the CE3b group and in 6 in the CE4 group.

Results: The IL-4 levels at baseline were significantly increased in patients with CE3b cysts compared to patients with CE4 cysts (p=0.006). Although significant area under curve results were obtained (p=0.007) upon ROC analysis, the cut-off maximizing sensitivity for CE3b cysts diagnosis predicted CE3b with a 60% sensitivity and 76% specificity, whereas the cut-off chosen to maximize specificity predicted CE3b with 33% sensitivity and 95% specificity. As expected, we observed no change in IL-4 levels in the CE4 group at T1. Regarding the CE3b group, among the 4/9 subjects whose cysts evolved to CE4 stage at T1, 2 (50%) showed an IL-4 decline compared to the baseline levels.

Conclusions: The levels of IL-4 produced in response to AgB are increased in samples from patients with active compared to inactive CE. Based on these findings, we are currently expanding our cohort, with additional follow-up time-points.