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Tropical Diseases Conference 2019: Sensitive and specific ELISA for the serological diagnosis of Strongyloides infections – JM Warnecke - EUROIMMUN AG

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Introduction: The nematode Strongyloides stercoralis is the causative agent of strongyloidiasis, which can manifest in humans with dermatological, pulmonic and intestinal symptoms frequently passing into a chronic disease. Diagnosis of Strongyloides stercoralis infection is typically made by finding larvae of the parasite within the faces. The larval output is orders of magnitude less than, say, the egg output of Ancylostoma duodenal, therefore the sensitivity of conventional techniques is poor Sensitivity is enhanced by specific techniques, but the infection can still be missed. Strongyloidiasis may be a potentially serious infection in immunocompromised patients. Thus, the supply of sensitive and specific diagnostic methods is desirable, especially within the context of immunosuppressed patients in whom the diagnosis and treatment of strongyloidiasis is of utmost importance. Especially in immune compromised patients. This study aimed to evaluate serological and molecular methods for the diagnosis of human strongyloidiasis in samples from immunosuppressed patients that were previously analysed by parasitological methods. In this study, serological and molecular tools were used to diagnose Several serologic methods as stool-based microscopy and culture techniques lack sensitivity; DNA detection have demonstrated reproducible results with high sensitivity and specificity the detection of serum antibodies is regarded as a surrogate for diagnosing DNA extraction was performed according to a previously described method 12 . Briefly, approximately 500 mg of stool samples preserved in 70% ethanol were washed twice in PBS. The resultant pellet was used for DNA extraction we assessed the accuracy of five different serologic tests also using a composite reference standard, nematode widely distributed all over the world, in areas where poor hygienic conditions permit the maintenance of its transmission. In the human host the infection is characterized by an auto infective cycle, that can lead to life-long carriage of the parasite if left untreated obtained by combining the results of different tests. The recently developed NIE-LIPS resulted virtually 100% specific, with sensitivity >80% Strongyloides infections. Here, we evaluated the analytical performance of a completely unique anti-Strongyloides IgG ELISA.

Methods: The Anti-Strongyloides ELISA IgG (Euroimmun AG, Lbeck, Germany) is based on antigen prepared from S. papillosus. ELISA sensitivity and specificity were evaluated ideally the test should become negative or consistently show a marked decrease in titter in a predictable time after successful treatment. The enzyme substrate, ortho-phenylenediamine with 0.03% hydrogen peroxide in 0.1 moll/L citrate phosphate buffer Although some studies document a decline of antibody titter after effective treatment, Several studies support the idea that detection of parasite-specific antibodies may be a useful complement to the parasitological diagnosis of Diagnostic immunological methods include the enzyme-linked immunosorbent assay a clear cut-off value has yet to be defined in comparison to the serological reference standard applied at the Institute for Parasitology, University of Bern, Switzerland. Proper diagnostic testing is crucial both to spot S. stercoralis-infected individuals and to gauge the prevalence of the infection among populations. One of the main problems with S. stercoralis is that its overall prevalence is probably underestimated the sensitivity panel comprised mostly due to the lack of sensitivity of faecal – based tests that are the most commonly used assessments for S. stercoralis infection. Serologic tests are also very useful, but their specificity is variable anti-Strongyloides antibody positive sera according to the reference in-house ELISA. The specificity/cross-reactivity panel included 39 control sera classified as negative for anti-Strongyloides antibodies or positive for antibodies against other parasites, including samples from patients with other parasitic infections (Echinococcus, Filaria, Ascaris, Toxocara, Trichinella, Fasciola, Schistosoma, Trichuris, Amoeba, Leishmania, Plasmodium, multi-infection; n=25), cancer patients (n=5) and healthy blood donors (n=9). Borderline results were considered as positive.

Results: The results obtained using the Anti-Strongyloides ELISA was in agreement with reference testing in 94.6% (53/56) of all samples. In the sensitivity panel, the Anti-Strongyloides ELISA the results of each method were compared with those of the parasitological methods and the degree of agreement was determined by the Kappa coefficient (k). Statistical significance was set at $p < 0.05$. was positive in 16/17 sera, like a sensitivity of 94.1%. The serum yielding discrepant results the diagnosis of strongyloidiasis depends on the identification of larvae in faecal specimens through concentration techniques or cultures was collected from a patient with multiple infections. Among the control samples, positivity was found in 2/39 cases (one cancer patient and one blood donor), resulting in a specificity of 94.9%.

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