Neurocysticercosis (NCC) is the most common cause of acquired epilepsy in Taenia solium endemic areas, primarily situated in low-income countries. Diagnosis is largely based upon the "Del Brutto diagnostic criteria" using the definitive/probable/no NCC diagnosis approach. Neuroimaging and specific T. solium cysticercosis antibody detection results are at the mainstay of this diagnosis, while antigen detection in serum has never been included. This study aimed at evaluating the addition of antigen detection as a major diagnostic criterion, especially in areas where neuroimaging is absent.

The B158/B60 monoclonal antibody-based enzyme-linked immunosorbent assay (ELISA) for the detection of circulating cysticercus antigen was carried out retrospectively on serum samples collected during a hospital-based study from 83 people with epilepsy (PWE) in an endemic area. The addition of antigen results as a major criterion allowed the correct diagnosis of definitive NCC in 10 out of 17 patients as opposed to 0/17 without antigen results in the absence of neuroimaging. A sensitivity of 100% and a specificity of 84% were determined for the diagnosis of active NCC using antigen ELISA. While the use of a higher cutoff improves the specificity of the test to 96%, it decreases its sensitivity to 83%. In areas where neuroimaging is absent, NCC diagnosis according to the...
existing criteria is problematic. Taking into account its limitations for diagnosis of inactive NCC, antigen detection can be of added value for diagnosing NCC in PWE by supporting diagnostic and treatment decisions. Therefore, we recommend a revision of the "Del Brutto diagnostic criteria" for use in resource poor areas and suggest the inclusion of serum antigen detection as a major criterion.