

Comparison of four commercial kits for the detection of antibodies against *Echinococcus granulosus* in human sera

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Our purpose was to evaluate and compare 4 commercial kits for the detection of antibodies against *Echinococcus granulosus* antibodies in human sera:

1. “VIRapid-Hydatidosis” (Vircell, Spain),
2. “ELISA-Echinococcus IgG” (DRG, Germany),
3. “Echinococcus Western Blot (WB) IgG” (LDBIO-Diagnostics, France)
4. “CHORUS Echinococcus IgG” (Diesse, Italy).

For the method performance *Analytic Sensitivity (ASe)*, *Reproducibility*, *Repeatability*, *Accuracy* and *Precision* were evaluated. For this purpose, firstly, 2 Cystic Echinococcosis (CE) positive sera were two fold serially diluted, their total protein quantified by Pierce™ BCA Protein-Assay-Kit (Thermo Scientific™), finally each dilution point was analyzed by each kit. Afterward, a total of 28 sera belonging respectively to 14 human patients affected by CE and 14 from free healthy donors were tested in duplicate analysis the 4 kits by two different operators. Evaluations were performed according to OIE and Italian-Accreditation-Body (ACCREDIA) procedure (Regulation UNI-CEI-EN-ISO/IEC 17025). Agreement between results was calculated by Cohen coefficient (κ), according to Byrt table.

ASe was similar for CHORUS-Diesse and ELISA-DRG and higher for WB-LDBIO and even more for Hydatidosis-VIRapid. The last test was still able to detect a weak signal at total protein concentration of 80µg/ml. *Reproducibility* performed by two operators, *Repeatability*, *Accuracy* and *Precision* evaluated by means of duplicate analysis of the 4 tests displayed a high agreement value of κ . Conversely, when results were compared to clinical data the agreement showed a fair κ value (0.427 to 0,620). Only 8 patients, out of the 14 CE clinically positive, resulted positive by all assays. Moreover, 1, having a surgically excised cyst, was negative to CHORUS-Diesse. Concerning WB-LDBIO, 1 patient, with a transitional hydatid, resulted negative and another 1, with a transitional was positive. Finally, 3 patients with, respectively, transitional, inactive and cerebral hydatids, were negative to all tests.