

Evaluation of On-Site, Rapid Test Kits to Detect anti-HCV and HBsAg

Ganbolor Jargalsaikhan^{1,2}, Odgerel Oidovsambuu^{2,3,4}, Bekhbold Dashtseren^{1,2}, Zulkhuu Genden², Erdenebayar Namjil⁵, Alimaa Tuya⁵, Tserendejid Magvansuren⁵, Ganbaatar Baldan¹, Andreas Bungert³, Naranbaatar Dashdorj³, Naran Gurjav¹, Naranjargal Dashdorj^{2,3}

¹Mongolian National University of Medical Sciences, ²Liver Center, ³Onom Foundation, ⁴National University of Mongolia, ⁵National Center of Transfusion Medicine

Background: Application of onsite, rapid tests for screening of HBV and HCV infections is the best diagnostic method for any developed or developing countries, because of a number of advantages such as low cost, quick results, and ease of usage.

Objective: To evaluate the specificity and sensitivity of several rapid test kits that are most commonly used in Mongolia for the detection of anti-HCV and HBsAg.

Methods: The study was designed as cross-sectional comparative analysis. The analysis were performed on total of 270 serum samples, which are divided into 3 groups including the HCV-RNA positive group with 90 samples, the HBV-DNA positive group with 90 samples, the all-negative donor group with 90 samples. All samples were subjected for detection of anti-HCV and HBsAg using OraSure, CTK Biotech, Abon, Cypress Diagnostic and Hexagon onsite, rapid test kits.

Results: In case of detection specificity for anti-HCV, OraSure, Hexagon, Cypress, Abon, and CTK showed 100%, 98.3%, 93.2%, 87.8% and 94.2% of specificity. While, in case of sensitivity, they were 100%, 98.9%, 96.7%, 100% and 100% respectively.

In case of detection specificity for HBsAg, Hexagon, Cypress, Abon and CTK test kits showed 97.3%, 95.7%, 100% and 98.3% of specificity. The sensitivity of all test kits for HBsAg were 100%.

Conclusion: This study revealed that OraSure is high sensitivity and specificity to detect anti-HCV and Abon is high sensitivity and specificity to detect HBsAg. Therefore, it is very important to choose right one based on their characteristics for screening of HBV and HCV infections.