30

USE OF AN AUTOMATED RPR SYSTEM FOR DIAGNOSIS OF SYPHILIS

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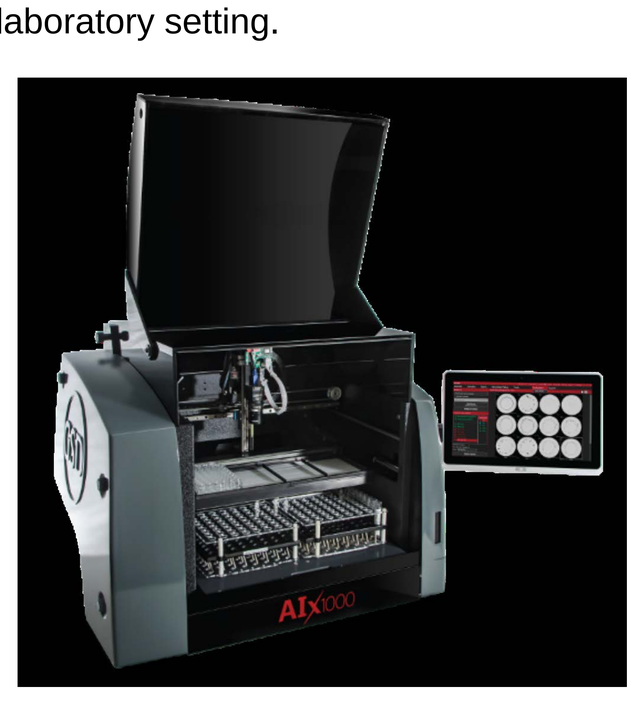
BACKGROUND

The Centers for Disease Control and Prevention (CDC) recommends a tiered serology-based testing such as the rapid plasma reagin (RPR). (1)

For reactive RPR specimens, a confirmatory assay containing T. pallidum-specific antigens, the T. pallidum passive particle agglutination (TP-PA) assay is performed. The AIX 1000 (Gold Standard Diagnosis) is a fully automated RPR system that has been designed to detect RPR specimens with high sensitivity and specificity.

Because the manual RPR is time consuming and interpreting the agglutination reaction can be subjective, we decided to use this new system for testing RPRs.

The objective was to evaluate the clinical performance of the AIX1000 instrument for routine testing of RPR in a clinical laboratory setting.



https://gsdx.us/aix1000-home/

METHODS

We reviewed the lab information system from 06/01/2017-05/31/2018 to obtain the number of RPR tests performed and the distribution of the titer results. TP-PA was used as a confirmatory test for reactive RPRs. Samples that tested reactive by RPR with titers of 1:1 and 1:2 were further analyzed to assess the result of the confirmatory test.

RESULTS

A total of 18,105 specimens were tested during the study time period. Overall, 883 (5%) samples were reactive. Of these, 213 (24.1%) samples had a titer of 1:1 and 185 (20.9%) had a titer of 1:2. Further analysis showed that 161/374 (43%) of samples with titers of 1:1 and 142/185 (76.7%) with titers of 1:2 were confirmed by TP-PA.

Most of the reactive RPR with titers of 1:1 that did not confirm were ordered in patients seen in OBGYN and HIV clinics. A few patients with reactive RPR with titer 1:1 had history of RPR positive many years ago and the subsequent RPR tests have been negative, (Tables 1&2).

Table 1. Patient's conditions and Reactive RPR (1:1 & 1:2 titers)

Condition	Number of patients (total no. 398)
HIV/AIDS	130
Pregnancy	35
Immunosuppression	10
Others	18

Table2. Reactive RPR Titers 1:1 and 1:2 that confirmed by TP-PA

RPR Titer	No. of specimen	%	TP-PA (n)	TP-PA %
RPR 1:1	213	1.1%	0	0%
RPR 1:2	185	1%	142	0.7%

CONCLUSIONS

The automated AIX 1000 provides a fully automated process for RPR and titers. However, in our hands, the use of this instrument for routine testing in a clinical laboratory setting showed that many patients without past or present history of syphilis can get a reactive RPR with low titer that is not confirmed by TP-PA.