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biome and proposes that surveying the vaginal microbiome is valuable for detecting and treating gynecologic diseases in the future.

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W101

Stable preservation of SARS-COV-2 RNA from gargle samples on FTA cards

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Background-aim

RT-PCR of SARS-CoV-2 RNA isolated from swabs and gargle samples has become a gold standard to confirm COVID-19 diagnosis. Viral transport media are commonly used to collect and store such specimen, but render them fragile and potentially hazardous. Flinders Technology Associates (FTA) cards were shown to be a reliable option for safe transport and storage of viral RNA pathogens. This study aimed at investigating the stability of SARS-CoV-2 RNA from gargle samples on FTA cards.

Methods

17 confirmed SARS-CoV-2 positive (Ct 18 to 36) and 3 negative gargle samples were spotted onto FTA Classic Cards (Whatman). After drying, eight 3 mm discs were punched out from each card and eluted into TE buffer. Remaining sampling areas were stored either at -20°C or at room temperature for up to 3 weeks. RNA was extracted using the QIAamp Viral RNA Mini Kit. The SARS-CoV-2 RealFast Assay (ViennaLab Diagnostics) covering two viral sequences (N and RdRP genes) plus the ACTB human control gene was applied for PCR. This assay is capable of detecting 10 viral RNA copies per reaction, and has a demonstrated diagnostic specificity and sensitivity of 99% and 100%, respectively.

Result

The RNA status of all 20 specimen was confirmed from gargle samples in parallel to spotting onto FTA cards. After drying and elution, PCR was repeated from FTA discs. A median Ct shift of 4.1 (N gene) and 3.7 (RdRP gene) was observed for discs in comparison to the original liquid samples. PCR testing from FTA cards kept at -20°C for one week showed a median Ct shift of 5.5 (N) and 5.2 (RdRP) against the original gargle samples. Comparable results were obtained from cards kept at room temperature for one week (N: 5.6; RdRP: 5.3). Tests were repeated after 3 weeks and revealed no further loss of detectable RNA (-20°C: N 5.0 / RdRP 4.5; RT: N 5.0 /RdRP 5.3). All gargle samples with Ct<34 in liquid state maintained PCR positivity from FTA cards.

Conclusions

Our data suggest that FTA cards provide a reliable matrix to preserve SARS-CoV-2 RNA for storage and transportation also at elevated temperatures. The Ct shift observed upon testing from FTA cards can, to a large extent, be attributed to sample input, which in our case was approx. 12-fold higher from liquid gargle samples.

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W102

Correlation between the atellica SARS-COV-2 IgG assay results and the presence of SARS-COV-2 neutralizing antibodies

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Background-aim

Antibodies against SARS-CoV-2 detected by routine immunoassays ensure the existence of antibodies binding the virus, but not necessarily the elimination of the infection. Instead, neutralizing antibodies protect against SARS-CoV-2. Virus neutralization test remains the gold standard, but other neutralization assays have been developed to estimate the neutralizing potential against SARS-CoV-2, among them the FDA approved cPass SARS-CoV-2 Neutralization Antibody Detection (cPass) assay.

We studied the correlation between the results obtained with SARS-CoV-2 IgG (Siemens Healthineers) and cPass (GenScript) assays in 218 patients.

Methods

SARS-CoV-2 IgG is a 2-step sandwich immunoassay automated on Atellica analyzer. It is an assay based on indirect chemiluminescent technology used for the qualitative and quantitative detection of IgG antibodies (sCOVG) against SARS-CoV-2.

cPass assay is a blocking ELISA detection assay using the HRP-conjugated recombinant receptor binding domain (RBD) from the viral spike protein and the human Angiotensin-Converting Enzyme 2 (ACE2). The interaction between HRP-RBD and ACE2 will be blocked if neutralizing antibodies against SARS-CoV-2 RBD are present in the sample. Results higher than 30% indicate the presence of neutralizing antibodies.

Result

We observed that the presence of SARS-CoV-2 neutralizing antibodies correlated with sCOVG results, observing that neutralizing antibodies using the manufacturer cutoff (>30%) were present in 5% of samples with sCOVG <1, 83% of samples with sCOVG between 1 and 2, 96% of samples with sCOVG between 2,01 and 10, and 100% of samples with sCOVG >10.

On the other hand we studied the agreement between the titers obtained for both tests using Passing Bablok regression analysis, obtaining a regression coefficient of 0.881.

Finally, we compared the accuracy of the results of the sCOVG and the cPass tests. The area under the curve obtained in the comparison between both tests was 0,969. Furthermore, we observed a concordance between both tests considering the respective cut-off points (≥1 for sCOVG and ≥30 for cPass assay) in 96% of patients included in our study.

Conclusions

We concluded that the Atellica SARS-CoV-2 IgG assay correlates well with the detection of neutralizing antibodies.

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