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PS05.08 (830)

Detection of SARS-CoV2 by a Commercial RNA Detection Kit: a Public Health Laboratory Experience

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**Purpose:** There is a critical shortage of the commercial SARS-CoV2 detection kits and a major problem for testing capacity in Bangladesh since December, 2019 to combat the Covid19 pandemic. So this study was aimed to assess SARS-CoV2 detection with a commercial RNA detection kit by the qualitative real time PCR from respiratory specimens (nasal or throat swab) of Covid19 suspected cases.

**Methods & Materials:** This cross sectional study was done by convenience sampling from Munshiganj district and four different hospitals in Dhaka city from 28 November 2020 to 4 December 2020. Nasal or throat swab samples were collected from Covid19 suspected cases and sent to NIPSOM RT-PCR lab, National Institute of Preventive and Social Medicine (a public health laboratory), NIPSOM, Mohakhali, Dhaka, Bangladesh. A commercial kit [Adaltis MOLGen SARS-CoV-2 (3Genes) RealTime PCR, Italy] containing the primer and probe set in fluorimeter channel was used to detect three genes of SARS-CoV-2: RNA-dependent RNA polymerase (RdRp), envelope (E) and nucleocapsid (N) with endogenous internal control (IC). Threshold cycle (CT) value was selected at ≤40 for each positive gene and detection of at least two different genes (RdRp and E gene or N gene) was interpreted as SARS-CoV2 positive.

**Results:** A total of 1061 samples of Covid19 suspected cases within 4 to 98 years of age were included in this study and male female ratio was 1.33:1. Among 1061 samples, 298 (28.18%) were tested positive for SARS-CoV2 with mean age of 43.33 years and male was found predominantly. Of them, 94.98% were positive for RdRp, E and N genes whereas all (100%) were found positive for only RdRp and E gene. Here, the Ct value of IC ranged within 20 to 40 and 44.48% was found at Ct 30–35 followed by 36.79% at Ct 25–30 and 10.37% at Ct 35–40. For individual RdRp gene, E gene and N gene, highest Ct values were at 30–35 with 26.42%, 30.43% and 28.87% respectively.

**Conclusion:** To address accurate and safely diagnosis of SARS-CoV-2, this commercial RNA detection kit will help during the COVID-19 pandemic.

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PS05.09 (358)

To Determine the Efficacy of Remdesivir in Covid-19

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**Purpose:** To Determine the Efficacy of Remdesivir in Covid-19

**Methods & Materials:** We conducted an interventional, single-center study. Two groups were made. First group was labeled ‘Remdesivir group’, to whom after Informed Consent Injection Remdesivir (200 mg on the first day followed by 100 mg per day for next four days) was given. Second group was the ‘Control group’, to whom injection Remdesivir was not given.

Patients in both groups had corona virus disease confirmed either through nasopharyngeal swab RT-PCR or HRCT. Convenience sampling technique with lottery method was used to make comparable groups.

On admission all patients were oxygen dependent. The primary outcome was to compare the time to recovery, defined by ‘Number of days spent in hospital to maintain oxygen saturation of at least 93% on room air’. The secondary outcome was to determine overall mortality benefit, defined by decreased mortality incidence.

For comparison purpose; three major categories were made within both groups. (1) ‘Mild Category’ had oxygen saturation 91% to 93% on Room air, (2) ‘Moderate Category’ had oxygen saturation 71% to 90% on Room air and (3) ‘Severe Category’ had oxygen saturation less than 70 % on Room air.

**Results:** Total 236 patients were included in the study. Remdesivir group comprised of 118 patients and Control group comprised of 118 patients.

In Remdesivir group 21 patients had Mild disease (19 discharged, 2 died), 48 patients had Moderate disease (46 discharged, 2 died). 49 patients had Severe disease (10 discharged, 39 died).

In Control group 24 patients had Mild disease (20 discharged, 04 died), 48 patients had Moderate disease (46 discharged and 2 died). 46 patients had severe disease (15 discharged, 31 died).

The mean hospital stay in Remdesivir group was 13 days and overall mortality rate was 36.44%, the mean hospital stay in Control group was 11 days and overall mortality was 31.35% (p-value=.57, chi-square statistic 0.0013).

**Conclusion:** Our data show that Remdesivir was not superior to standard of care treatment in shortening the overall time to recovery in adults with established Covid-19. No Mortality benefit was observed with Remdesivir treatment.

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Sensitive and visual detection of SARS-CoV-2 using polymerase spiral reaction assay

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**Purpose:** Testing of SARS-CoV-2 for large populations is crucial for diagnosis, epidemiology, and surveillance of COVID-19. Currently, reverse transcription (RT) qPCR (RT-qPCR) is being performed worldwide and considered as a gold standard. As an alternative nucleic acid amplification test (NAAT)-based method, RT-polymerase spiral reaction (RT-PSR) assay can be a rapid, robust, and cost-effective point-of-care detection of SARS-CoV-2.

**Methods & Materials:** Inactivated SARS-CoV-2 virus samples were provided by the National Institute of Virology, India for this study. Specific primers targeting Nucleocapsid (N) gene, and RNA-dependent RNA polymerase (RdRp) genes of SARS-CoV-2 were designed for RT-PSR assay. Purified RNA was used for the standardisation of the RT-PSR using in vitro synthesised viral RNA. A simple visual detection of SARS-CoV-2 by the naked eye was optimised using hydroxy naphthol blue dye. The sensitivity of the assay was performed by diluting viral RNA at various concentrations. The limit of detection was estimated and tested with RT-PSR. Computational analysis was performed to determine the specificity of the primers by calculating the percentage of mismatch using various novel coronavirus sequences, other coronaviruses, and other related RNA virus sequences.

**Results:** Temperature and time for RT-PSR assay were found to be optimum at 63°C and 60 min, respectively, for both the gene
targets. RT-PSR assay amplified even at a concentration of 5 ng/µl and could detect ten copies and one copy of RNA targeting RdRp and N gene, respectively. RT-PSR amplified products were visually detected by the naked eye and further verified by agarose gel electrophoresis. Primers used for the RT-PSR assay showed zero percent mismatch with SARS-CoV-2 sequences and mismatch with other viruses.

**Conclusion:** The RT-PSR assay developed in this study could be considered a good alternative to the RT-qPCR assays.

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**PS05.11 (901)**

**Tuberculosis and COVID 19: An epidemic submerged in the pandemic: A case series from Eastern India**

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**Purpose:** The COVID-19 pandemic caused by the novel SARS-CoV-2 has spread globally causing over eighteen million positive cases and about half-a-million deaths. During the ongoing pandemic, TB diagnosis might be missed or delayed due to similar clinical presentation. While TB-COVID 19 co-infection is uncommon and might be purely incidental; a higher mortality of 12.3% in cases of co-infections is alarming especially in patients with co-morbidities. With resources being diverted towards COVID and fear of handling sputum, TB control has spiralled to what it was a decade ago. Here we are reporting a case series of SARS-CoV– TB co-infection from Eastern India.

**Methods & Materials:** Nasal swab was collected for the diagnosis of COVID -19 and RT-PCR done for the suspected cases. Sputum/plural tissue samples were collected from hospitalised suspected patients who did not improve clinically or developed atypical radiological picture and were subjected to staining, Xpert MTB/Rif assay (CBNAAT). Samples that were positive for acid fast bacilli (AFB) and MTB DNA by CBNAAT were considered as Mycobacterium tuberculosis complex.

**Results:** There were four cases of SARS-CoV 2–TB co-infection from our hospital. Two patients presented with COVID-19 before the diagnosis of TB, one with both infections occurring in same week, and one patient with COVID-19 followed by COVID-19.

**Table**

Demographic characteristics and Outcomes of patients with TB & COVID-19 co-infection

| Details | Case-1 | Case-2 | Case-3 | Case-4 |
|---------|--------|--------|--------|--------|
| Age/ Sex Co-morbidities | 50/Male Type 2 diabetes, renal transplant Moderate | 30/Female Perforation peritonitis | 65/Female None | 70/Male None |
| COVID Status | | | |
| Outcome | Patient on ATT | Patient on ATT | Patient died | Patient on ATT |

**Conclusion:** We screened the admitted patients who didn’t improve clinically and having atypical radiographic pictures. As both the diseases have respiratory symptoms predominantly, but TB takes longer time to develop we might have missed many patients with tuberculosis. It is important to screen patients of TB for COVID 19 and not to miss the possibility of coexistence of both diseases, especially in high-risk individuals.

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**PS05.12 (89)**

**Novel PCR Test to Differentiate Between Infections with SARS-CoV-2, Influenza A and B**

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**Purpose:** Infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes COVID-19, a worldwide spreading disease with acute respiratory distress syndrome as one of the major complications. In the early disease stage, COVID-19 cannot be distinguished from influenza based on the clinical symptoms. During viraemia, direct pathogen detection by reverse transcription polymerase chain reaction (RT-PCR) is the diagnostic gold standard. This study evaluated a novel real-time RT-PCR test for fast detection and differentiation of RNA from SARS-CoV-2 and influenza virus types A and B.

**Methods & Materials:** The assay’s diagnostic performance was compared to CE-IVD/FDA-EUA-marked reference PCR tests. RNA was extracted from patient samples collected as nasopharyngeal