



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

clinical information submitted along with the samples

Results: Among the samples of children received and analysed at VRDL in three months, 343 tested positive for COVID-19, of which 129 (37.60%) cases were symptomatic and 214 (62.3%) were asymptomatic. Among the symptomatic cases, 25 (19.3%) cases were diagnosed with SARI. Fever was the most common non respiratory symptom seen. The results of the remaining three months will be produced at the time of the presentation

Conclusions: Knowing the prevalence of asymptomatic and symptomatic cases of COVID-19 among children helps in making strategies for effective control of COVID-19

<https://doi.org/10.1016/j.ijmmb.2021.08.232>

DIAGNOSIS OF COVID-19 BY RTPCR AND CORRELATION WITH RADIOLOGICAL AND IMMUNOLOGICAL PARAMETERS AMONG HEALTH CARE WORKERS AT A TERTIARY CARE HOSPITAL IN HYDERABAD

Syed Touseef Banu, M. L. Kavitha Latha, Mohammad Khaleelullah Khan, L. Jayalakshmi. Osmania Medical College, Hyderabad

Background: Detection of Covid-19 among Health Care Workers (HCWs) is crucial for hospital infection prevalence and containment of the disease. According to current diagnosis criteria, laboratory diagnosis by RTPCR has become standard and formative assessment of Covid-19 infection. Present study aims to diagnose Covid-19 infection by RTPCR and correlating the results with clinical, immunological and radiological parameters in HCWs at Sir Ronald Ross Institute of Tropical And Communicable Diseases (SRRIT&CD), Hyderabad.

Methods: All HCWs of SRRIT&CD tested by RTPCR for Covid-19 were included in the study. HCWs positive by RTPCR were advised quarantine and investigated for CBP, Chest X-Ray, HRCT Chest (radiological investigations) CRP and IL-6 (Immunological investigations).

Results: Since SRRIT&CD is an isolation centre all HCW were exposed to Covid-19 cases and were tested regularly for Covid-19 by RTPCR. 53 (12.6%) of HCWs were positive for Covid-19, out of which 22 (41.5%) were doctors, 6 (11.3%) were nursing staff, 13 (24.5%) were technical staff, 8 (15%) were sanitation and house-keeping staff and 4 (7.5%) were office staff. 88.7% of 53 Covid positive cases were symptomatic presenting with fever as the common symptom and 11.3% were asymptomatic. Significant chest X-ray, HRCT Chest and immunological findings were reported in 11.3%, 9.4% and 9.4% respectively. 2 (3.7%) HCW with co-morbidities succumbed to the disease. Re-infection was seen in 1 HCW (1.9%).

Conclusions: In the present study RTPCR is the main stay in the diagnosis of Covid-19 which is a potential occupational risk among health care individuals. Hence early diagnosis by RTPCR and effective isolation can minimize the spread of the disease in the institute

<https://doi.org/10.1016/j.ijmmb.2021.08.229>

ROLE OF BIOMARKERS IN CLINICALLY AND RADIOGRAPHY SUSPECTED RT-PCR NEGATIVE COVID-19 PATIENTS AT A TERTIARY CARE HOSPITAL

Manohar M. Reddy, A. Renuka, A. Surekha, B. Shanthi Reddy. Department Of Microbiology, Kurnool Medical College

Background: The outbreak of COVID-19 which started in late 2019 has rapidly reached a pandemic status all over the world. India being one of the most affected countries has borne the brunt of this infection. Though Viral RNA detection by RT-PCR is considered the gold standard for confirming the infection, yet false-negative RT-PCR rates are noted at about 15%. We know the role of biomarkers and their significance in SARS-CoV-2 infection. The utility of biomarkers in RT-PCR negative patients is studied here

Methods: The study was conducted in the Microbiology department, Central Diagnostic Laboratory at Kurnool Government Medical College. We retrospectively analyzed biomarkers of 100 clinically suspected COVID-19 patients with significant changes in chest CT (CORADS score 4 or 5) who had undergone RT-PCR test from JULY to October 2020. Out of 100 patients, 50 were RT-PCR positive and 50 were RT-PCR negative. The RT-PCR analysis was performed by

using the Biorad CFX96 machine and Allplex™ 2019-nCoV Assay kits. The Biomarkers CRP, D-Dimer, and LDH were analyzed by clinical chemistry analyzer, Pentra C 200

Results: Among 50 RT-PCR positive patients, 43 (86%) showed an increase in CRP, 46 (92%) showed an increase in D-Dimer, and 47 (94%) showed an increase in LDH. Out of 50 RT-PCR negative patients, 32 (64%) showed an increase in CRP, 42 (84%) in D-Dimer, and 45 (90%) in LDH.

Conclusions: This study demonstrates that biological markers not only aid in identifying RT-PCR negative cases but also play an equally important role like other diagnostic COVID-19 tests in identifying and cautioning the doctor of the impending severity of the disease

<https://doi.org/10.1016/j.ijmmb.2021.08.230>

COMPARATIVE STUDY BETWEEN SALIVA AND NASOPHARYNGEAL & OROPHARYNGEAL SWAB SPECIMENS FOR DETECTION OF SARS-COV-2 (NOVEL CORONA VIRUS) BY RT-PCR

Ashok Kumar Sharma, Manoj Kumar, Kumari Seema, Manju Boipai, Nikesh Sinha. Rajendra Institute of Medical Sciences, Ranchi

Background: The outbreak of Coronavirus Disease-2019 (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) has threatened health worldwide. Rapid and early laboratory diagnosis of COVID-19 is the main focus of treatment and effective infection control in the hospital as well as in the community. Molecular tests are the basis for confirmation of COVID-19 and are gold standard test. In addition to most common respiratory specimens such as nasopharyngeal & oropharyngeal swabs it has been frequently detected in saliva specimens.

Methods: A total of 405 patients hospitalized in RIMS, Ranchi from August 14th to October 30th, 2020 with confirmed SARS-CoV-2 infection were included in this study. Both the nasopharyngeal & oropharyngeal swabs and saliva specimens were tested for SARS-CoV-2 by RT-PCR.

Results: In this study 74.56% (302/405) patients were tested positive in both saliva and nasopharyngeal & oropharyngeal swab, 19.50% (79/405) patients tested positive nasopharyngeal & oropharyngeal swab only and none of the patients tested positive in saliva only. Among 405 patients male and female were 261 (64.4%) and 144 (35.6%). SARS-CoV-2 was most commonly detected in the 46 to 60 years of age group 83.87% (78/93) followed by 16 to 30 years 74.6% (106/142) and 31 to 45 years 74.6% (89/123).

Conclusions: This study indicated that saliva can be used as a promising non-invasive sample for diagnosis, monitoring and control of COVID-19.

<https://doi.org/10.1016/j.ijmmb.2021.08.231>

TO STUDY THE DIAGNOSTIC RELEVANCE OF RAPID ANTIGEN TEST FOR COVID-19 AS COMPARED TO SARS-COV-2 RT-PCR WITH SPECIAL REFERENCE TO RDRP CT VALUE

Vidyut Prakash, Kumar Saurabh, S.K. Shahi, Namrata Kumari. Indira Gandhi Institute of Medical Sciences, Patna

Background: In routine clinical practice diagnosis of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections is done by reverse-transcription PCR (RT-PCR). Ct (cycle threshold) value represents the cycle of PCR when fluorescence crosses the threshold of detection and has an inverse relationship with the initial load of cDNA in the case of coronavirus. This study is being done to evaluate the diagnostic relevance of Rapid antigen test (Accucare COVID-19 antigen card test) for COVID-19 as compared to SARS-CoV-2 RT-PCR (Q-Line Molecular ER nCoV-19 RT-PCR Kit) with special reference to RdRp Ct value.

Methods: Overall 5314 nasopharyngeal swabs in pair were collected from patients within the duration of September and October 2020, who came to IGIMS Patna for consultation. We performed rapid antigen test and RT-PCR test after RNA extraction from an automated system (MagNA Pure 96) as per manufacturer protocol by using the above-mentioned kits.

Results: Among all the samples tested, 102 (1.91%) samples were found positive

in the rapid antigen test and 229 (4.30%) in the RT-PCR test. Among positive RT-PCR result, Ct value of 91 samples were ≤ 20 , those of 44 samples were between 21 to 25 and those of 94 samples were ≥ 26 . We also observed that about 98% of samples with Ct value ≤ 20 for the RdRp gene were positive for rapid antigen, whereas only 25% were positive with rapid antigen test having Ct value between 21 to 24. No sample, having Ct value ≥ 25 for RdRp gene, was found to be positive by rapid antigen test.

Conclusions: RT-PCR is considered a gold standard test for diagnostic confirmation of COVID-19. Rapid antigen test is ideal for screening and isolation of patient having a high viral load which is more infectious and thus limit the spread of infection in communities.

<https://doi.org/10.1016/j.ijmmb.2021.08.232>

SEROLOGICAL RESPONSE IN HEALTHCARE WORKERS AT AN EXCLUSIVE COVID-19 FACILITY IN DELHI

Pradeep Kumar Bharti, Rohit Chawla, Sonal Saxena, Ritika Bakshi, Meera Dhuria, Panna Lal. Maulana Azad Medical College

Background: Healthcare workers (HCWs) have high risk of contracting severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) due to the increased likelihood of clinical exposure during patient management. The study objective was to determine the seroprevalence of antibodies to SARS-CoV-2 and its predictors among hospital employees.

Methods: The cross-sectional study was conducted in a teaching hospital from August 2020 to September 2020, among

1401 employees, including 1217 healthcare workers in New Delhi, India. The serum samples were examined for IgG antibodies to SARS-CoV-2 using the COVID Kavach™ Anti-SARS-CoV-2 IgG Antibody Detection ELISA kit. Data were collected electronically using the EpiCollect mobile platform. $P < 0.05$ was considered statistically significant.

Results: A total of 169 (12.1%) participants had detectable IgG antibodies to SARS-CoV-2. The highest seropositivity rate was observed in the administrative staff (20.1%), while it was lowest among medical doctors (5.5%) ($p < 0.001$).

Conclusions: The probability of HCW-to-HCW, or patient-to-HCW transmission of SARS-CoV-2 was found to be lower than the risk of acquisition of infection from general population

<https://doi.org/10.1016/j.ijmmb.2021.08.233>

SCENARIO BASED WORK PLACE BASED ASSESSMENT: AN INNOVATIVE TEACHING TOOL FOR HAND HYGIENE AND APPROPRIATE USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

Faria Hasan, Preeti Thakur, Vikas Manchanda, Sonal Saxena, Neha Rana. Department of Microbiology, MAMC

Background: Efficacy of scenario based work place based assessment (WPBA) as a learning approach for the prevention and control of HAIs is limited. This study aimed to assess the students on hand hygiene and PPE use and to investigate effectiveness of WPBA as teaching tool. Additionally student's perception in form of self-appraisal was compared with their performance in assessment.

Methods: A prospective study was conducted in Department of Microbiology and Department of Medical Education in Maulana Azad Medical College & associated hospitals, New Delhi. Student group comprised of first year postgraduates admitted to MD/MS/Diploma courses in various specialities and had undergone infection control training soon after admission. Multiple clinical and pre/para clinical scenarios were structured. A validated check list to record the performance of students was formulated according to WHO guidelines. Pre-test and post-test was conducted to investigate the effectiveness of scenario-based WPBA. Feedback in the end of session in the form of self-appraisal was taken.

Results: A total of 204 students participated in the study who were divided in 11 small groups with 17-20 students each. Student's self-perception about their knowledge and skills regarding hand hygiene and PPE usage was significantly higher than their actual performance in scenario based WPBA ($p < 0.001$). The performance of students in post-test significantly improved as compared to

pretest ($p < 0.001$). 77.7% of trained postgraduates performed hand hygiene steps correctly compared to untrained ones (59.6%). Prior training of students did not affect the overall performance in PPE use. Learning curve regarding hand hygiene was more matured in students with more clinical exposure than students with less clinical exposure ($p < 0.01$).

Conclusions: Scenario based WPBA is an effective tool to improve the knowledge acquisition in medical teaching. Further training of participants is recommended.

<https://doi.org/10.1016/j.ijmmb.2021.08.234>

EVALUATION OF THE CURRENTLY USED ANTIGEN-BASED RAPID DIAGNOSTIC TEST FOR THE DETECTION OF SARS COV-2 VIRUS IN RESPIRATORY SPECIMENS

Neha Rana, Preeti Thakur, Sonal Saxena, Vikas Manchanda, Ritu Arora. Department of Microbiology, Maulana Azad Medical College

Background: COVID-19 is a respiratory disease caused by novel coronavirus SARS CoV -2 and has been declared as pandemic by WHO. The timely detection of cases and their contacts is crucial to help curtail the pandemic. Introduction of antigen based RDT has been able to bridge the time gap of detection and tracing as these tests are timely and easy to perform. However the real world performance of these assays is uncertain and the sensitivity of the test is claimed to be between 50% to 87%. This study was conducted to evaluate the currently used antigen -based RDT for the detection of SARS CoV-2 virus in respiratory specimens.

Methods: This prospective study included patients who were seeking healthcare in Ophthalmology department for eye ailments and were subjected to SARS CoV-2 antigen based RDT. Regardless of results of RDT, nasopharyngeal swabs were collected from these patients and were tested for SARS CoV-2 RNA by real-time RT-PCR using commercial assay (SD Biosensor). The evaluation of antigen-based RDT for the detection of SARS CoV-2 virus was performed with real time RT-PCR as gold standard.

Results: A total of 564 patients were tested by both antigen based RDT and real time RT-PCR. The antigen based RDT exhibited analytical sensitivity and specificity of 37.5% and 99.79% respectively. Positive predictive value and negative predictive value of RDT were 96.4% and 91.6% respectively. Negative correlation was found between antigens based RDT's positivity and Ct values of E and RdRp genes.

Conclusions: Overall poor sensitivity of RDT does not allow adopting it as point of care test in screening for COVID-19 and it only serves as an additional test to RT-PCR because of potential false negative results.

<https://doi.org/10.1016/j.ijmmb.2021.08.235>

ASSESSING VIRAL SHEDDING OF SARS-COV-2 IN TEARS IN MODERATE TO SEVERE CORONAVIRUS DISEASE 2019 (COVID-19) PATIENTS.

P. Pumma, V. Manchanda, S. Saxena, S. Kumar, R. Goel. Department of Microbiology, Maulana Azad Medical College

Background: SARS CoV-2 is a novel coronavirus, the causative agent of COVID-19. Airborne respiratory droplet transmission is well recognized; however, transmission by methods, such as ocular secretions, is yet to be proven. The objective of the study was to investigate the presence of SARS-CoV-2 RNA in tears of patients with moderate to severe coronavirus disease 2019.

Methods: Tears were collected within 48 hours of laboratory confirmation using 3 methods: conjunctival swab plus Schirmer's test strips (group 1), conjunctival swab (group 2), and Schirmer's test strips (group 3). Samples from both the eyes of each patient were transported in a single viral transport media for real-time RT-PCR. Demographic profiles, systemic symptoms, comorbidities, and ocular manifestations were noted. Viral load of a sample was determined using cycle threshold (Ct) value of E gene.

Results: Out of 75 patients 48% (36) had moderate disease, while 52% (39) had severe disease. RT-PCR analysis of tears showed positive results in 18 patients (24%). Positive results were found in 11 (14.7%), 11 (14.7%), and 7 (9.3%)