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.

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Targeting SARS-CoV-2 and other viruses. 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.

https://doi.org/10.1016/j.ijid.2021.12.102

**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 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-2 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 that 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         | 50/Male              | 30/Female            | 65/Female            | 70/Male              |
| Co-morbidities   | Type 2 Diabetes, renal transplant | Perforation peritonitis | None | None |
| COVID Status     | Severe               | Severe               | Severe               | Severe               |
| 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.

https://doi.org/10.1016/j.ijid.2021.12.103

**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
or oropharyngeal swabs. Virus-specific RNA was amplified after reverse transcription using the EURORealTime SARS-CoV-2/Influenza A/B PCR test (EUROIMMUN) allowing simultaneous detection of two target sequences in the SARS-CoV-2 ORF1ab and N genes as well as one target sequence each for influenza virus A and B. Assays were carried out on the CFX96 cycle (Bio-Rad) and evaluated with the EURORealTime Analysis Software (EUROIMMUN). The 95% limit of detection (LoD) was determined by Probit analysis using a dilution series of quantified target RNA. To exclude cross-reactivity and interference, the assay was run against human genomic DNA/RNA, nucleic acids from different viral, bacterial and fungal pathogens, and potentially interfering substances.

Results: Compared to the reference PCR tests, the EURORealTime SARS-CoV-2/Influenza A/B showed positive agreements of 97.8%, 93.0% and 100% and negative agreements of 100%, 100% and 98.9% for SARS-CoV-2, influenza A and influenza B, respectively. The 95% LoD values were calculated to be 0.55cp/μl for SARS-CoV-2, 0.92cp/μl for influenza A H3N2, 0.67cp/μl for influenza A H1N1 and 1.21cp/μl for influenza B. No cross-reactivities with human or pathogen-specific nucleic acids or interferences were detected.

Conclusion: The novel test is able to detect SARS-CoV-2, influenza A and influenza B with high sensitivity and clearly discriminate between these viruses. It is therefore optimally suited for differential diagnostics for patients presenting with symptoms compatible with COVID-19 and influenza. Combined detection of the three pathogens in one multiparameter assay helps to save time and resources in the diagnostic workflow.

https://doi.org/10.1016/j.ijid.2021.12.104

PS05.13 (667)
MIP-1a and MIP-1b in serum as potential markers of the severe course COVID-19
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Purpose: Studying the pathogenesis of COVID-19 is necessary to developing of perspective predictors of severe course of disease and unfavorable prognosis. The macrophage activation syndrome observed in severe form of COVID-19 can potentially be used as a marker of poor prognosis, which makes it relevant to measure the levels of macrophage inflammatory proteins MIP-1a and MIP-1b.

Methods & Materials: Study included 80 patients (43 men and 37 women) aged 24 - 90 years (mean = 58.3 years) with laboratory confirmed COVID-19 admitted Infectious Diseases Hospital in Moscow during April - August 2020. Patients were divided into 2 groups: group 1 included patients with a moderate form (N=30), group 2 (N=50) included patients with a severe form of COVID-19. Serum levels of MIP-1a and MIP-1b were assessed by ELISA.

Results: An increase of the MIP-1a level was observed in 3 patients in group 1 (10%) and in 42 patients in group 2 (84%). At the same time, the average concentration of MIP-1a was 3.71 pg/ml and 156.79 pg/ml in groups 1 and 2, respectively (p < 0.01).

MIP-1b level above baseline was detected in 11 patients in group 1 (36.7%) and in 48 patients in group 2 (96%). The mean MIP-1b concentrations were 7.53 pg/ml and 152.62 pg/ml in groups 1 and 2, respectively. Similarly with MIP-1a, the difference in mean MIP-1b concentrations between the two groups was statistically significant (p < 0.01).

A statistically significant correlation between the concentrations of MIP-1a and MIP-1b was observed for whole study population, the Pearson’s correlation coefficient (r) is 0.756 (p < 0.01). At the same time, there were no statistically significant differences related to gender and age. Taken together, these data suggest the potential of serum concentrations of MIP-1a and MIP-1b as markers of the disease severity.

Conclusion: COVID-19 is accompanied by an increase in the level of macrophage inflammatory proteins. The severe disease in most cases was associated with significant increase in the concentrations of MIP-1a and MIP-1b in the blood serum, which makes it possible to consider these proteins as potential markers of the severe COVID-19.

https://doi.org/10.1016/j.ijid.2021.12.105

PS05.14 (590)
Predictors of severe course of COVID-19 depending on comorbid background
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Purpose: The COVID-19 pandemic poses a challenge for the medical community to study the peculiarities of patient management, particularly to refine the risk of a severe course of disease, depending on the presence of comorbidities.

Aim of study: Identification of factors affecting the likelihood of developing a severe course of COVID - 19 in comorbid patients.

Methods & Materials: A retrospective study of hospitalized patients diagnosed with COVID-19 with a comorbid background in the period from January to November 2020 in the Russian Federation. An analysis of the severity of the course was carried out depending on the comorbid background with the calculation of OR and CI 95%, significant factors influencing the development of a severe course of the disease were identified.

Results: Of 67567 patients, 22545 had comorbidities. 7025 (31.2%) of them had severe course of illness, 15520 (68.8%) - mild/moderate. 45,022 patients had no comorbidity: severe course was in 2558 (5.7%) patients, mild/moderate – in 42464 (94.3%). Calculating from the total number of patients: comorbidity and severe course was recorded in 10.4%; comorbidity and mild/moderate course - in 23%; severe course without comorbidity was in 3.8%; mild/moderate course without comorbidity was in 62.8%. The comorbidity increased the risk of developing a severe course by 7.514 times, compared with patients without a comorbid background (95% CI: 7.156-7.890). The presence of comorbidities of the respiratory system was detected in 3042 patients (4.5% of the total) and increased the risk of developing a severe course by 1.618 times (95%, CI: 1.478-1.771); cardiovascular system - 12706 (18.8%), risk increased by 5.015 times (95% CI: 4.788-5.253), endocrine - 2314 (3.4%), risk increased by 3.274 times (95%, CI: 2.995-3.579), oncology - 944 (1.4%), risk increased by 4.072 times (95% CI: 3.567-4.648). These indicators are statistically significant (p <0.001). Diseases of the gastrointestinal tract (p=0.213) and urinary system (p=0.12) were statistically insignificant.

Conclusion: The results indicate an increasing risk of severe course of COVID-19 in patients with comorbidities. Additional diagnostic measures to search for a comorbid background will allow medical professionals to make more accurate predictions for each individual patient.

https://doi.org/10.1016/j.ijid.2021.12.106