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.

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 cycler (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 workup.

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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.

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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.

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