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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100 residents. The prevalence rate of severe COVID-19 in block-type dormitories was 1.1%, while in corridor-type dormitories the studied coefficient was 11 times higher and averaged 11.6%.

Conclusion: The type of planning arrangement of collective housing organizations is a fundamental factor influencing on the course of epidemic process of COVID-19 in dormitories. The complex of necessary anti-epidemic measures aimed at localizing

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No Difference in the Incubation Period of COVID-19 in Different Gender, Ages, and Epidemic Periods in South Korea
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Purpose: The incubation period is an important epidemiologic characteristic of infectious diseases in determining the quarantine period. In South Korea, there still have been debates about the quarantine period of coronavirus 2019 (COVID-19). Furthermore, the differences in the incubation period of COVID-19 by age and gender are still not well understood.

Methods & Materials: We collected data on COVID-19 cases published by the South Korean public health authorities. Using this data, we estimated the incubation period by fitting three different distributions (Weibull, gamma, and log-normal) by gender, age group, and the different epidemic periods of COVID-19. We divided our study into two epidemic periods (First epidemic wave: 28 January 2020 – 18 April 2020, Second epidemic wave: 19 April 2020 – 30 August 2020). We used the Wilcoxon test to assess for any significant differences between the incubation periods by gender, epidemic period, and age group. We selected the best-fit model by comparing the Akaike Information Criterion. All analyses were done in R version 3.6.1 and level of significance was set at p-value < 0.05.

Results: The log-normal model was best fitted in the study. The estimated median incubation period using the log-normal model was 4.6 days (95% confidence interval: 1.19 – 13.4), and the 95th percentile was 11.74 days. There was no significant difference in incubation period between males and females (P = 0.42), as well as with the epidemic periods (P = 0.77).

Conclusion: This study provides evidence for the median incubation period for COVID-19 of approximately 4.6 days. Our work brings out more evidence of the incubation period for COVID-19 and shows that it may be prudent to continue with the current 14-day quarantine policy.

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Detection of SARS-CoV-2 IgM Antibodies in Febrile Patients From an Endemic Region of Dengue and Chikungunya
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Purpose: The rapid expansion of the novel SARS-CoV-2 virus has raised serious public health concerns due to the possibility of misdiagnosis in regions where arboviral diseases are endemic. We performed the first study in northern Peru to describe the detection SARS-CoV-2 IgM antibodies in febrile patients from an endemic zone for dengue virus (DENV) and chikungunya virus (CHIKV).

Methods & Materials: A cross-sectional study was performed in febrile patients attending primary healthcare centers from April 2020 through March 2021. This study was carried out jointly with the national surveillance system for the etiologic identification of acute febrile illness (AFI). Patients are included if they attended outpatient clinics with AFI (auxiliary temperature greater than or equal to 38°C in the previous 7 days) along with one or more of the following symptoms: headache, myalgias, arthralgias, retroocular pain, lumbar pain, arthritis, nausea, rash, among others. Serum samples were collected from each patient, for the molecular and serological detection of DENV and CHIKV by RT-PCR and IgM ELISA-based assay, respectively. Also, the detection of IgM antibodies against SARS-CoV-2 with an ELISA-based assay was performed.

Results: 464 patients were included during the study period, of which 188 (40.51%) were positive for one pathogen, meanwhile 32 (6.90%) presented co-infections between 2 or more pathogens. The majority of patients with monoinfections were positive for SARS-CoV-2 IgM with 73.40%, followed by DENV 18.09% and CHIKV 8.51%. The most frequent co-infection was DENV+SARS-CoV-2 with 65.63%, followed by DENV+CHIKV and DENV+CHIKV+SARS-CoV-2, both with 12.50%. The presence of polyarthralgias in hands (p<0.01) and feet (p=0.05) were more frequently reported in patients with CHIKV monoinfection. Also conjunctivitis was more common in patients positive for SARS-CoV-2 IgM (p<0.01). The rest of the symptoms were similar among all the study groups.

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Conclusion: In conclusion, a high prevalence of SARS-CoV-2 IgM antibodies were frequently detected in acute sera from febrile patients with a clinical suspicion of arboviral disease. These results highlight the need to consider SARS-CoV-2 infection as a differential diagnosis of AFI in endemic areas for arboviruses, as well as consider co-infections between these pathogens.

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PS07.12 (616)

Does the Hygiene Hypothesis Explain COVID-19 Cases and Death? A Global Analysis

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Purpose: At the start of the COVID-19 pandemic there was widespread speculation on the role of the hygiene hypothesis in the incidence and mortality of COVID-19. This study sought to determine if such a correlation exists via a global analysis using many surrogate factors representing the hygiene hypothesis.

Methods & Materials: Publicly available data from 190 countries were gathered. These data included COVID-19 total case numbers and deaths through December 28, 2020; water, sanitation, and hygiene (WaSH) metrics; data on mortality due to various types of air pollution; and other factors such as control of solid waste, emission growth rate of methane and carbon dioxide, and daily adjusted life years lost to unsafe drinking water and sanitation.

Using IBM SPSS 27.0, these factors were analyzed using multiple regression analyses to determine the combination of factors most predictive of COVID-19 total cases and deaths. Separate regressions were conducted for the two criterion variables.

Results: The analysis revealed positive correlations between two predictor variables: a nation’s mortality due to air pollution (MDAP) and control of solid waste (CSW), with COVID-19 total number of cases. The combination of predictors accounted for approximately 28% of the variance in total number of cases. Concerning the number of COVID-19 deaths, 9.6% of the variance was accounted for by MDAP. Findings support previous studies pointing to the likelihood of air pollution as a potential catalyst for COVID-19 spread.

Conclusion: Decreasing air pollution is an important mitigating strategy for dealing with respiratory viruses, as it correlates with decreased damage to the respiratory system and decreased time for the virus to circulate in denser particles of polluted air. Thus, MDAP is an effective predictor of COVID-19 cases, and to a lesser extent, deaths. The positive correlation with cases and CSW indicates a likelihood that lockdowns throughout the world wreaked havoc on solid waste disposal systems, particularly in nations with prior effective CSW mechanisms. Although the hygiene hypothesis is not supported, findings should encourage societies to implement policies which focus on minimizing air pollution and strengthen systems to CSW and attenuate a descent into another global pandemic.

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Multidrug resistant Gram-negative bacilli infection in critically ill patients with Coronavirus disease 2019

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Purpose: Rapid spread of multidrug resistant Gram-negative bacilli (MDR-GNB) infection in Coronavirus disease (COVID-19) critically ill patients was observed even in those without underlying diseases and in all age groups. We conducted a prospective cohort study to assess the risk factors for acquisition of MDR-GNB infection in COVID-19 patients and its impact on patients’ outcome.

Methods & Materials: We included 43 consecutive patients with COVID-19 from a total of 8874 patients with COVID-19 admitted into the ICU of Aleman Hospital, Argentina, from May 1st 2020 to June 30th 2021. Followed up until death or 30 days after hospital discharge. We divided them into 4 groups: colonized with MDR-GNB (G1), colonized with MDR-GNB and infected with non-carbapenem resistant bacteria (G2), colonized and infected with MDR-GNB (G3), and infected with MDR-GNB without previous colonization (G4). Microbiological sampling was performed according to patient’s conditions or epidemiological surveillance. Outcomes considered were length of hospital stay (LOS), mortality and readmission rate.

Results: Seven, five, six and twenty five patients were distributed respectively in G1, G2, G3 and G4. Male/female ratio was 2:1 with a median age of 68 years (IQR 62–75). Chronic pulmonary disease (18.6%) was the main comorbidity. Mean LOS was 40.16 days (P=0.79). Prolonged biomedical devices used were observed in 93% of patients (P=0.33). Ventilator associated pneumonia (n:15/36) and catheter-related bloodstream infection (n:16/36) were the most frequent infections (P=0.29, P=0.69). The most common carbapenem-resistant pathogens were Klebsiella pneumoniae (n: 38/60) and Pseudomonas aeruginosa (n:8/60). All patients were exposed to antibiotics before MDR-GNB was diagnosed. The first isolation of MDR-GNB was on average 14 days after hospital admission (P=0.84). Time between MDR-GNB colonization and infection was twice as much between G2 and G3 (8.4 Vs. 4 days, P=0.83). We observed no difference in all-cause mortality rate and readmission rate between the groups (P=0.75, P=0.97).

Conclusion: Prolonged ICU hospitalizations in addition to use of invasive devices and antibiotics exposure correlate with a higher risk of developing MDR-GNB colonization and infection in COVID-19 critically ill patients.

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