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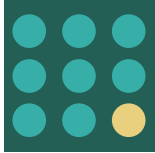
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Section Epidemiology



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Section Editor-in-Chief







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Message from the Section Editor-in-Chief

This Section of the Journal of Personalized Medicine seeks to publish high-quality, peer-reviewed, and evidence-based contributions that advance the area of personalized medicine in connection to epidemiology. Epidemiology is defined as the scientific, methodical, and data-driven study of the distribution and determinants of health-related states and occurrences (not only illnesses) in defined populations. Epidemiology is a cornerstone of public health, shaping policy choices and evidence-based practice by identifying disease risk factors and preventative healthcare priorities.

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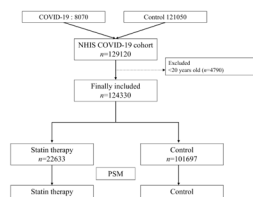
Featured Papers

DOI:10.3390/jpm11020116

Statin Therapy and the Risk of COVID-19: A Cohort Study of the National Health Insurance Service in South Korea

Authors: Tak Kyu Oh, In-Ae Song and Young-Tae Jeon

Abstract: We aimed to investigate whether statin therapy is associated with the incidence of coronavirus disease 2019 (COVID-19) among the South Korean population. In addition, we examined whether statin therapy affects hospital mortality among COVID-19 patients. The National Health Insurance Service (NHIS)-COVID-19 database in South Korea was used for data extraction for this population-based cohort study. A total of 122,040 adult individuals, with 22,633 (18.5%) in the statin therapy group and 101,697 (91.5%) in the control group, were included in the analysis. Among them, 7780 (6.4%) individuals were diagnosed with COVID-19 and hospital mortality occurred in 251 (3.2%) COVID-19 cases. After propensity score matching, logistic regression analysis showed that the odds of developing COVID-19 were 35% lower in the statin therapy group than in the control group (odds ratio: 0.65, 95% confidence interval: 0.60 to 0.71; $p < 0.001$). Regarding hospital mortality among COVID-19 patients, the multivariable model indicated that there were no differences between the statin therapy and control groups (odds ratio: 0.74, 95% confidence interval: 0.52 to 1.05; $p = 0.094$). Statin therapy may have potential benefits for the prevention of COVID-19 in South Korea. However, we found that statin therapy does not affect the hospital mortality of patients who are diagnosed with COVID-19.

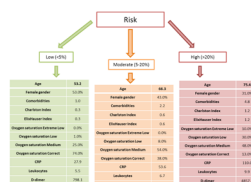


DOI:10.3390/jpm11010036

A Predictive Model and Risk Factors for Case Fatality of COVID-19

Authors: Melchor Álvarez-Mon, Miguel A. Ortega, Óscar Gasulla, Jordi Fortuny-Profítos, Ferran A. Mazaira-Font, Pablo Saurina, Jorge Monserrat, María N. Plana, Daniel Troncoso, José Sanz Moreno, Benjamin Muñoz, Alberto Arranz, Jose F. Varona, Alejandro Lopez-Escobar and Angel Asúnsolo-del Barco

Abstract: This study aimed to create an individualized analysis model of the risk of intensive care unit (ICU) admission or death for coronavirus disease 2019 (COVID-19) patients as a tool for the rapid clinical management of hospitalized patients in order to achieve a resilience of medical resources. This is an observational, analytical, retrospective cohort study with longitudinal follow-up. Data were collected from the medical records of 3489 patients diagnosed with COVID-19 using RT-qPCR in the period of highest community transmission recorded in Europe to date: February–June 2020. The study was carried out in two health areas of hospital care in the Madrid region: the central area of the Madrid capital (Hospitales de Madrid del Grupo HM Hospitales (CH-HM), $n = 1931$) and the metropolitan area of Madrid (Hospital Universitario Príncipe de Asturias (MH-HUPA) $n = 1558$). By using a regression model, we observed how the different patient variables had unequal importance. Among all the analyzed variables, basal oxygen saturation was found to have the highest relative importance with a value of 20.3%, followed by age (17.7%), lymphocyte/leukocyte ratio (14.4%), CRP value (12.5%), comorbidities (12.5%), and leukocyte count (8.9%). Three levels of risk of ICU/death were established: low-risk level (<5%), medium-risk level (5–20%), and high-risk level (>20%). At the high-risk level, 13% needed ICU admission, 29% died, and 37% had an ICU–death outcome. This predictive model allowed us to individualize the risk for worse outcome for hospitalized patients affected by COVID-19.





MicroRNAs—A Promising Tool for Asthma Diagnosis and Severity Assessment: A Systematic Review

Authors: Mohammed Aref Kyyaly, Elena Vladimirovna Vorobeva, Dilini M. Kothalawala, Wei Chern Gavin Fong Peijun He, Collin L. Sones, Mohammad Al-Zahrani, Tilman Sanchez-Elsner, Syed Hasan Arshad and Ramesh J. Kurukulaaratchy

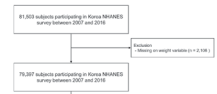
Abstract: Micro RNAs (miRNAs) are short, non-coding RNAs (Ribonucleic acids) with regulatory functions that could prove useful as biomarkers for asthma diagnosis and asthma severity-risk stratification. The objective of this systematic review is to identify panels of miRNAs that can be used to support asthma diagnosis and severity-risk assessment. Three databases (Medline, Embase, and SCOPUS) were searched up to 15 September 2020 to identify studies reporting differential expression of specific miRNAs in the tissues of adults and children with asthma. Studies reporting miRNAs associations in animal models that were also studied in humans were included in this review. We identified 75 studies that met our search criteria. Of these, 66 studies reported more than 200 miRNAs that are differentially expressed in asthma patients when compared to non-asthmatic controls. In addition, 16 studies reported 17 miRNAs that are differentially expressed with differences in asthma severity. We were able to construct two panels of miRNAs that are expressed in blood and can serve as core panels to further investigate the practicality and efficiency of using miRNAs as non-invasive biomarkers for asthma diagnosis and severity-risk assessment, respectively.



Association of Ventilatory Disorders with Respiratory Symptoms, Physical Activity, and Quality of Life in Subjects with Prior Tuberculosis: A National Database Study in Korea

Authors: Bumhee Yang, Hayoung Choi, Sun Hye Shin, Youlim Kim, Ji-Yong Moon, Hye Yun Park and Hyun Lee

Abstract: Tuberculosis (TB) survivors experience post-TB lung damage and ventilatory function disorders. However, the proportions of obstructive and restrictive ventilatory disorders as well as normal ventilation among subjects with prior TB are unknown. In addition, the impacts of ventilatory disorder and its severity on respiratory symptoms, physical activity limitations, and the quality of life in subjects with prior TB remain unclear. Subjects who participated in the Korean National Health and Nutritional Examination Survey 2007–2016 were enrolled in this study. We evaluated the impact of each ventilatory disorder and its severity on respiratory symptoms, physical activity limitations, and quality of life (measured by the EuroQoL five dimensions questionnaire [EQ-5D] index values) in subjects with prior TB. Among 1466 subjects with prior TB, 29% and 16% had obstructive ventilatory disorders and restrictive ventilatory disorders, respectively. Mild and moderate obstructive ventilatory disorders were not associated with respiratory symptoms, physical activity limitations, or EQ-5D index value compared with normal ventilation; however, severe obstructive ventilatory disorders were associated with more respiratory symptoms (adjusted odds ratio [aOR] = 13.62, 95% confidence interval [CI] = 4.64–39.99), more physical activity limitation (aOR = 218.58, 95% CI = 26.82–1781.12), and decreased EQ-5D index (adjusted coefficient = -0.06, 95% CI = (-0.12–-0.10) compared with normal ventilation. Mild restrictive ventilatory disorders were associated with more respiratory symptoms (aOR = 2.10, 95% CI = 1.07–4.14) compared with normal ventilation, while moderate (aOR = 5.71, 95% CI = 1.14–28.62) and severe restrictive ventilatory disorders (aOR = 9.17, 95% CI = 1.02–82.22) were associated with physical activity limitation compared with normal ventilation. In conclusion, among subjects with prior TB, 29% and 16% developed obstructive and restrictive ventilatory disorders, respectively. Severe obstructive ventilatory disorder was associated with more respiratory symptoms, more physical activity limitation, and poorer quality of life, while severe restrictive ventilatory disorder was associated with more physical activity limitations.



Invitation to Submit

Personalized Medicine in Post-COVID-19 Era

Guest Editors: Prof. Dr. Cristian Oancea and Dr. Elena Cojocaru

Deadline: 10 December 2023



Outcomes for Pregnancy in a Pandemic: The Impact of COVID-19 Vaccines on Pregnant Women and Newborns

Guest Editor: Dr. Alicia Martínez-Varea

Deadline: 10 February 2024



Personalized Medicine for COVID-19

Guest Editors: Prof. Dr. George P. Patrinos and Dr. Cleo Anastassopoulou

Deadline: 29 February 2024



Effects of COVID-19 on Pregnancy

Guest Editors: Dr. Alessandro Favilli, Dr. Simone Garzon and Dr. Antonio Simone Laganà

Deadline: 10 March 2024



Multidisciplinary and Personalized Approach for Post-COVID-19 Syndrome

Guest Editors: Prof. Dr. Antigona Carmen Trofor and Prof. Dr. Roxana Maria Nemes

Deadline: 15 March 2024



Precision Medicine for Epidemiology and Public Health

Guest Editors: Prof. Dr. Martina Barchitta, Dr. Roberta Magnano San Lio

and Dr. Giuliana Favara

Deadline: 10 April 2024



Recent Advances in Oral Diseases

Guest Editors: Dr. Omar Kujan, Prof. Ramesh Balasubramaniam

and Prof. Agnieszka Frydrych

Deadline: 30 April 2024



Respiratory Health and Chronic Disease Management

Guest Editors: Dr. Radu Adrian Crisan-Dabija and Dr. Alexandru Burlacu

Deadline: 30 April 2024



Current Status and Future Research in Infectious Diseases' Treatment and Prophylaxis

Guest Editor: Dr. Loredana Sabina Cornelia Manolescu

Deadline: 5 May 2024



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