

SPECIAL ISSUE

51 7 2021

ISSN 1300-0144 · E-ISSN 1303-6165



TURKISH JOURNAL OF MEDICAL SCIENCES

http://journals.tubitak.gov.tr/medical/

SI: Updates of Pandemic COVID-19

Guest Editor Zeliha KOÇAK TUFAN





TURKISH JOURNAL OF MEDICAL SCIENCES

Editor-in-Chief Assistant Editors in Chief Mehmet Akif ÖZTÜRK, Gazi University, Turkey Murat KEKİLLİ, Gazi University, Turkey Selim ARICI, Ondokuz Mavis University, Turkey Kürşat ALTINBAŞ, Selçuk University, Turkey Zehra Sema ÖZKAN, Kırıkkale University, Turkey

VOLUME 51 • ISSUE 7 • 2021 ISSN 1300-0144 • E-ISSN 1303-6165

SCOPE OF JOURNAL

- The Turkish Journal of Medical Sciences is published electronically 6 times a year by the Scientific and Technological Research Council of Turkey (TÜBİTAK).
- Accepts English-language manuscripts in all fields of medicine and related health sciences.
- Contribution is open to researchers of all nationalities.
- The following types of papers are welcome: original articles (for the presentation of clinical and laboratory studies), review articles (by invitation only), and letters to the editor (letters to the editor should be under 500 words, with no abstract, and a maximum of one table, one figure, and 15 references).

EDITORIAL BOARD

- Abdurrahman TUFAN, Gazi University, Turkey
- Abdülcemal Ümit IŞIK, Karadeniz Technical University, Turkey Adem GÜNGÖR, Ankara University, Turkey
- Adem ÖZKARA, Ankara Numune Education and Research Hospital, Turkey Ahmet DEMİRCAN, Gazi University, Turkey
- Ahmet Murad HONDUR, Gazi University, Turkey
- Ahmet Yağmur BAŞ, Yildirim Beyazit University, Turkey
- Ahu PAKDEMİRLİ, University of Health Sciences, Turkey Akın KAYA, Ankara University, Turkey

- Ali Fuat ERDEM, Sakarya University, Turkey
 Alpaslan TANOĞLU, İstanbul Sultan Abdülhamid Han Sample Training and Research Hospital, Turkey
- Atilla Halil ELHAN, Ankara University, Turkey Aydın HİM, Samsun Ondokuz Mayıs University, Turkey
- Aydın Şeref KÖKSAL, Sakarya University, Turk Ayhan CÖMERT, Ankara University, Turkey
- Begüm ERGAN, Dokuz Eylül University, Turkey Berrin GÜNAYDIN, Gazi University, Turkey
- Bülent ALTUNKAYNAK, Gazi University, Turkey
- Bülent YALÇIN, Yıldırım Beyazıt University, Turkey
- Cem SAKA, Ankara Dışkapı Yıldırım Beyazıt Training & Research Hospital, Turkey Cengiz CANPOLAT, Acıbadem University, Turkey
- Deniz ERBAŞ, University of Kyrenia, Turkish Republic of Northern Cyprus
- Deniz KÖKSAL, Hacettepe University, Turkey
- Didem Tuba AKÇALI, Gazi University, Turkey Ebru ARHAN, Gazi University, Turkey
- Emre HURI, Hacettepe University, Turkey
 Eralp BAŞER, Adana Numune Training and Research Hospital, Turkey
- Erdal Birol BOSTANCI, Sakarya University, Turkey Erhan ÇAPKIN, Karadeniz Technical University, Turkey
- Erkan YURTÇU, Başkent University, Turkey
- Erman ÇAKAL, Ankara Dışkapı Yıldırım Beyazıt Training & Research Hospital, Turkey
- Ertuğrul KILIÇ, İstanbul Medipol University, Turkey Eskild PETERSEN, Ministry of Health Muscat Oman, Oman
- Fatih Süheyl EZGÜ, Gazi University, Turkey Feride İpek KOMŞUOĞLU ÇELİKYURT, Kocaeli University, Turkey
- Gürsel Levent OKTAR, Gazi University, Turkey Hakan AKBULUT, Ankara University, Turkey
- Hakan Yusuf SELEK, Gazi University, Turkey Hasan TEZER, Gazi University, Turkey
- Hasan YAZICI, Academic Hospital, Turkey Hatice Kibriya FİDAN, Gazi University, Turkey
- Hatice PAŞAOĞLU, Gazi University, Turkey Hayrunnisa Bolay BELEN, Gazi University, Turkey
- Hülya BAŞAR, Ankara Education and Research Hospital, Turkey Hüseyin AYHAN, Yıldırım Beyazıt University, Turkey
- İbrahim Celalettin HAZNEDAROĞLU, Hacettepe University, Turkey
- Jing Xie. Johns Hopkins University, U.S.A
- Kadir Bahadır ALEMDAROĞLU, University of Health Sciences, Turkey Kadir Mutlu HAYRAN, Hacettepe University, Turkey
- Kadriye Aydın TEZCAN, Kartal Dr. Lütfi Kırdar Training and Research Hospital, Turkey Kazime Gonca AKBULUT, Gazi University, Turkey
- Kıvanç ÇEFLE, İstanbul University, Turkey Kürşat ALTINBAŞ, Çanakkale Onsekiz Mart University, Turkey
- Lütfiye Özlem ATAY, Gazi University, Turkey Mark S. KINDY, Medical University of South Carolina, U.S.A.
- Mehmet Ali ERGÜN, Gazi University, Turkey
- Mehmet Ali NAHİTŞENDUR, Yıldırım Beyazıt University, Turkey
- Mehmet ÇITIRIK, Ankara Ulucanlar Health Research Center, Turkey

- Mehmet Derya DEMİRAĞ, University of Health Sciences, Turkey
- Mehmet Halil ÖZTÜRK, Karadeniz Technical University, Turkey
- Mehmet KOC, Selcuk University, Turkey
- Mehmet OKUMUŞ, Ankara Training and Research Hospital, Turkey
- Mehmet UĞURLU, Yıldırım Beyazıt University, Turkey
- Mehmet Yücel AĞARGÜN, Medipol University, Turkey
- Mehran MIDIA, McMaster University, Canada Meltem Gülhan HALİL, Hacettepe University, Turkey
- Meltem IŞIKGÖZ TAŞBAKAN, Ege University, Turkey Metin DOĞAN, Necmettin Erbakan University, Turkey
- Mevlana Derya BALBAY, Koc University, Turkey Mevlüt Recep PEKCiCi, Ankara Health Research Center, Turkey
- Murad BAVBEK, Yıldırım Beyazıt University, Turke Murat ZİNNUROĞLU, Gazi University, Turkey
- Mustafa ALTAY, University of Health Sciences, Turkey
- Mustafa ARICI, Hacettepe University, Turkey
- Mustafa DURAN, University of Health Sciences, Turkey
- Mustafa Kemal KILIÇ, Ankara Research and Training Hospital, Turkey Mustafa Necmi İLHAN, Gazi University, Turkey
- Mustafa ÖZBEK, Ankara Dışkapı Yıldırım Beyazıt Training & Research Hospital, Turkey Nagihan UĞURLU, Yıldırım Beyazıt University, Turkey
- Nalan AKYÜREK, Gazi University, Turkey
 Necmettin AKDENİZ, İstanbul Mdeniyet University, Turkey
- Nihal DEMİREL, Yildirim Beyazit University, Turkey Nurdan BEDİRLİ, Gazi University, Turkey
- Oktay ALGIN, Yıldırım Beyazıt University, Turkey
- Onur ÖZLÜ, TOBB University of Economics & Technology, Turkey
- Onur TAYDAŞ, Sakarya University, Turkey
- Ömer KÜÇÜK, Emory University, U.S.A. Ömer Lütfi TAPISIZ, Etlik Zübeyde Hanım Women's Health Training and Research Hospital, Turkey
- Özcan EREL, Ankara Atatürk Research and Training Hospital, Turkey
- Özden ÖZYEMİŞCİ TAŞKIRAN, Koç University, Turkey
- Özgür KASAPÇOPUR, İstanbul University-Cerrahpaşa, Turkey Özlem UZUNLAR SAYLIK, Etlik Zübeyde Hanım Women's Health Training and Research Hospital, Turkey
- Rafi Haner DİRESKENELİ, Marmara University, Turkey Salih MOLLAHALİLOĞLU, Ankara Yıldırım Beyazıt University, Turkey
- Selahattin ÖZMEN, Koç University, Turkey
- Selami AKKUS, Yıldırım Beyazıt University, Turkey
- Sema HÜCÜMENOĞLU, University of Health Sciences, Turkey
- Serdar KULA, Gazi University, Turkey Serdar TOPALOĞLU, Karadeniz Technical University, Turkey
- Sevim ERCAN, Gazi University, Turkey Sevim ERDEM ÖZDAMAR, Hacettepe University, Turkey
- Sibel VELİOĞLU, Karadeniz Technical University, Turkey Sinan SARI, Gazi University, Turkey
- Suat DOĞANCI, Gülhane Training and Research Hospital, Turkey Şahender Gülbin AYGENCEL BIKMAZ, Gazi University, Turkey
- Şemsettin OKUYUCU, Mustafa Kemal University, Turkey Ülker GÜL, Akdeniz University, Turkey
- Ümit BAĞRIAÇIK, Gazi University, Turkey
- Ümit Murat ŞAHİNER, Hacettepe University, Turkey Yahya BÜYÜKAŞIK, Hacettepe University, Turkey
- Yasuyuki KATO, International University of Health and Welfare, Japan
- Yeşim SÜCÜLLÜ KARADAĞ, University of Health Sciences, Turkey
- Zafer TÜRKYILMAZ, Gazi University, Turkey Zeliha KOÇAK TUFAN, Yıldırım Beyazıt University, Turkey
- Zeynep MARAŞ ÖZDEMİR, İnönü University, Turkey

ABSTRACTED AND INDEXED

- Science Citation Index Expanded
- PubMed
- Academic Search Complete

CONTENTS

Editorial	i
Zeliha KOÇAK TUFAN	
PART 1. PANDEMIC CONTROL AND EFFECTS OF THE PANDEMIC ON SCIENCE, SOCIAL LIFE & F	CONOMY
Achievements of the COVID-19 Turkey Platform in vaccine and drug development with an approach of "co-c and succeeding together"	
Hasan MANDAL	3139
Turkey's response to COVID-19 pandemic: strategy and key actions	3150
Gülşen BARLAS, Harun ÖZTÜRK, Gülen PEHLİVANTÜRK, Sabahattin AYDIN	
One and a half years into the COVID-19 pandemic - exit strategies and efficacy of SARS-CoV-2 vaccines for hanagement and achieving global control	
Eskild PETERSEN, Deniz GÖKENGİN, Asma Al BALUSHI, Alimuddin ZUMLA	
Going back to normal, but how? Re-opening policies and the standards for a new normal Levent AKIN	3162
Managing life during the pandemic: communication strategies, mental health, and the ultimate toll of the COVID-19	2160
Mehmet Hakan TÜRKÇAPAR, Yasemin KAHYA, Tuğba ÇAPAR-TAŞKESEN, Hatice IŞIK	3100
Short-term impact of the Covid-19 pandemic on the global and Turkish economyÖmer AÇIKGÖZ, Aslı GÜNAY	3182
Global health emergencies during the pandemic and their solutions	3194
Nonpharmaceutical interventions in Turkey and worldwide during COVID-19 pandemic Mustafa Necmi İLHAN, Hakan TÜZÜN, Rahmi KILIÇ, Nuran YILDIRIM	3207
Current infection prevention and control strategies of COVID-19 in hospitals	3215
Pandemic hospitals and reorganizing emergency departments	3221
Evaluating the efficiency of public policy measures against COVID-19	3229
How efficient are facial masks against COVID-19? Evaluating the mask use of various communities one year is the pandemic	
Aslıhan CANDEVİR, Cem ÜNGÖR, Figen ÇİZMECİ ŞENEL, Yeşim TAŞOVA	3236
PART 2. SARS-COV2 AND COVID-19: EPIDEMIOLOGY, VACCINES, DIAGNOSIS & TREATMENT	
RNA-Based COVID-19 vaccine candidates with clinical phase trials in progress Leyla İpek RUDVAN AL, Meliha Çağla SÖNMEZER, Serhat ÜNAL	3246
Epidemiology of COVID-19: What changed in one year?	3253
From asymptomatic to critical illness - different clinical manifestations of COVID-19 in children	3262

Multisystem inflammatory syndrome in children	3273
Selda HANÇERLİ TÖRÜN, Dilek YILMAZ ÇİFTDOĞAN, Ateş KARA	
From asymptomatic to critical illness: decoding various clinical stages of COVID-19 İlhami ÇELİK, Recep ÖZTÜRK	3284
COVID-19 and Sepsis	3301
Zeliha KOÇAK TUFAN, Bircan KAYAASLAN, Mervyn MER	
Pregnancy and COVID-19: prevention, vaccination, therapy, and beyond	3312
The radiological findings of COVID-19	3327
The timing of intubation and principles of ICU care in COVID-19	3340
Implementation of post-intensive care outpatient clinic (I-POINT) for critically ill COVID-19 survivors Burçin HALAÇLI, Arzu TOPELİ	3350
Post-COVID syndrome: pulmonary complications	3359
An update of anti-viral treatment of COVID-19	3372
Immune dysfunction in COVID-19 and judicious use of antirheumatic drugs for the treatment of hyperinflammation Abdurrahman TUFAN, Marco MATUCCI CERINIC	3391

Editorial

The virus, SARS-CoV-2 and the disease, COVID-19 (CO: corona, VI: virus, D: disease, 2019).

Even the primary school students have more than enough knowledge about these words/terms and the pandemic now. Nobody seemed to have expected that this new emerging viral pneumonia outbreak that appeared in Wuhan in the last days of 2019 was going to break the chains and turn into a pandemic! After 2 years, many have learned to adapt to life in a pandemic, but many still struggle with its complications. The "new normal" has become our "normal" with masks, regular hand hygiene, keeping a distance from others, and so on. As of November 30, 2021, more than 250 million cases and 5 million deaths have been reported throughout the world (ourworldindata.org). Many lost their loved ones while many others lost their jobs, or even quit their jobs themselves. Academicians, physicians, health care personnel... All had been experiencing different levels of burnout! Mental health problems have been increasing, so that mental health task forces are gathering within campuses. Because of these psychological consequences of the pandemic, wellness studies, happiness, and life evaluation, religious practices plus volunteering were among the increasing interests, also in academy.

The disease affected our globe at a very unexpected level, both economically and socially. Education, ecosystem, tourism, cultural activities... All had to deal with different problems, had to take different measures to survive and live with and within the pandemic! A COVID-19 Scientific Advisory Board was gathered by the Ministry of Health of Turkey in the very early time of the outbreak. The Board members have been working 24/7 to overcome the outbreak in a professional way. They evaluate the data, prepare guidelines accordingly, and try to update the public. The "infodemic" has been an important concern as well. The Board has been discussing every detail on any subject with other professionals. All institutions and authorities have been welcomed to provide information and advice from the Board. The Board was enriched with the contributions of academics from social sciences.

The national and international institutions of our globe were all communicating and taking precautions in a faster manner than ever. Besides, the international organizations like WHO, UNESCO, and UNICEF, the roles of local authorities, health ministries, disease control centers, health protection agencies, research centers, and universities are all crucial at different operational levels to control and survive the pandemic. However, since the psychological aspects of the COVID-19 have been more severe than expected, mental health, wellness studies, and also the effects of volunteering studies will need more attention from the scientific authorities.

This second special issue the of Turkish Journal of Medical Sciences dedicated to COVID-19 is hosting the Scientific Advisory Board the of Ministry of Health. We cannot thank enough but only deeply appreciate the authors from the Scientific Board for their contributions. We would also like to extend our thanks to Prof. Ömer Açıkgöz, former Board Member of Halkbank and current Executive Board Member of Council of Higher Education, for evaluating the economic effects of COVID-19 for the issue. Besides The Scientific Board, the issue is also hosting several other important academicians to enrich the special issue: Prof. Eskild Petersen, Editor-in-Chief of International Journal of Infectious Diseases, Professor of Aarhus University, Head of Pro-Med and Consultant in Oman Ministry of Health; Prof. Kato Yasuyuki, the former Chief Physician of Division of Preparedness and Emerging Infections Disease Control and Prevention Center National Center for Global Health and Medicine of Japan, currently the Director of Department of Infectious Diseases of Narita Hospital, International University of Health and Welfare, Prof. Marco Matucci-Cerinic from the Department of Experimental and Clinical Medicine, University of Florence, Italy, and Prof. Mervyn Mer from the Divisions of Critical Care and Pulmonology, Department of Medicine, Charlotte Maxeke Johannesburg Academic Hospital and Faculty of Health Sciences University of the Witwatersrand, Johannesburg, South Africa.

Many thanks to the Editor in Chief, Prof. Mehmet Akif Öztürk, and his team in Turkish Journal of Medical Sciences for their help and enormous effort to prepare this second special issue. Finally, we are deeply grateful to Prof. Hasan Mandal, the President of the Scientific and Technological Research Council of Turkey for his enormous support for fighting against COVID-19 and making this special issue happen.

Zeliha KOÇAK TUFAN, MD, Prof. Guest Editor of the Special Issue