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Covid-19 scientific publications from Turkey

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Abstract: Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) outbreak poses a major global threat to the public health worldwide. The infectious disease caused by the virus that affected the entire world was named as the Coronavirus disease-2019 (COVID-19). The knowledge regarding the wide clinico-biological aspects of the COVID-19 continues to evolve very rapidly, given the growing data from all over the world. During this complicated process, healthcare professionals have benefited from each other's experiences in combatting against the COVID-19 syndrome. COVID-19 related studies have been performed by a wide variety of research groups in Turkey as well as the rest of the world. The aim of this paper is to outline Turkish COVID-19 research indexed in the LitCovid system. LitCovid is a curated literature hub for tracking up-to-date scientific data about the SARS-CoV-2. COVID-19's first case was detected in Turkey, on March 11th, 2020. Six months after the first case was observed, the total number of COVID-19 patients was reported to be as 286,455, and the total number of deaths due to SARS-CoV-2 was 6895. The genetic sequence of the novel coronavirus showed significant identity to SARS-CoV and MERS-CoV. Numerous drugs including lopinavir/ritonavir, favipiravir, neuraminidase inhibitors, remdesivir, umifenovir, azithromycin, and chloroquine have been suggested for the management of COVID-19 although the exact treatment is yet to be determined.

Key words: Covid-19, Turkish COVID 19 publications, literature, pathobiology, diagnosis, treatment

1. Introduction and COVID-19

On December 31st, 2019, the presence of patients with pneumonia of unknown etiology in Wuhan, China, was reported to the World Health Organization by the national authorities. This virus was officially identified as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The acute respiratory disease outbreak associated with SARS-CoV-2 was later named as the coronavirus disease-2019 (COVID-19). The first COVID-19 case had been observed in Turkey on March 11th, 2020 [1]. Six months after the first case was seen, the total number of patients was reported to be as 286.455 and the total number of deaths was 6895. The COVID 19 pandemic continues to be the focus of all people around the world. Most people infected with COVID-19 will be able to experience mild to moderate respiratory illness. However, patients with diabetes, chronic respiratory disease, and malignancies are more likely to develop more serious illnesses [2]. Elderly patients, the presence of comorbidities, higher d-dimer and C-reactive protein and lower lymphocyte levels are associated with higher mortality. In the light of the data obtained from the COVID-19 pandemic, the importance of intensive care units in the follow-up of these critical patients has been revealed [3]. The aim of this paper is to outline Turkish COVID-19 research indexed in LitCovid system.

2. COVID-19 and the curated literature hub, LitCovid

LitCovid is a curated literature hub for tracking up-to-date scientific data about the SARS-CoV-2. It is the most extensive resource on the COVID 19, supply a central access to 60544 (and expanding) relevant articles in PubMed. Articles at Litcovid are updated daily. It is categorized more by different research topics and geographic locations for better Access [4]. Countries mentioned in abstracts related to COVID 19 indexed in LitCovid is depicted in Figure 1. All articles added to this study have been discussed by searching from LitCovid.

3. Turkish COVID-19 publications indexed in LitCovid

COVID-19 related studies are available in a variety of groups in Turkey (Figure 2). Weekly publications in Turkey from 6th April to 11th October, 2020 is depicted in Figure 3. Articles are grouped under 8 headings;

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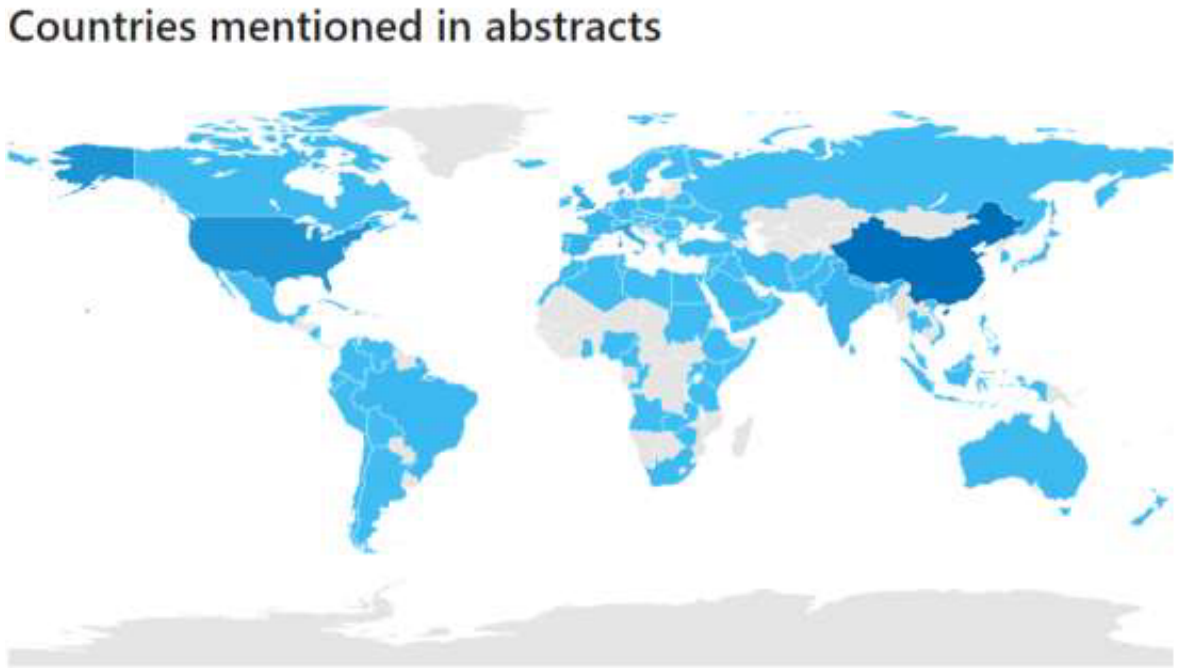

Figure 1. Countries mentioned in abstracts related to COVID 19 indexed in LitCovid[1] 60,544 (and growing) COVID-19 manuscripts, of which 204 are from Turkey, are present in LitCovid as of October 22, 2020 (4).

1 https://www.ncbi.nlm.nih.gov/research/coronavirus/

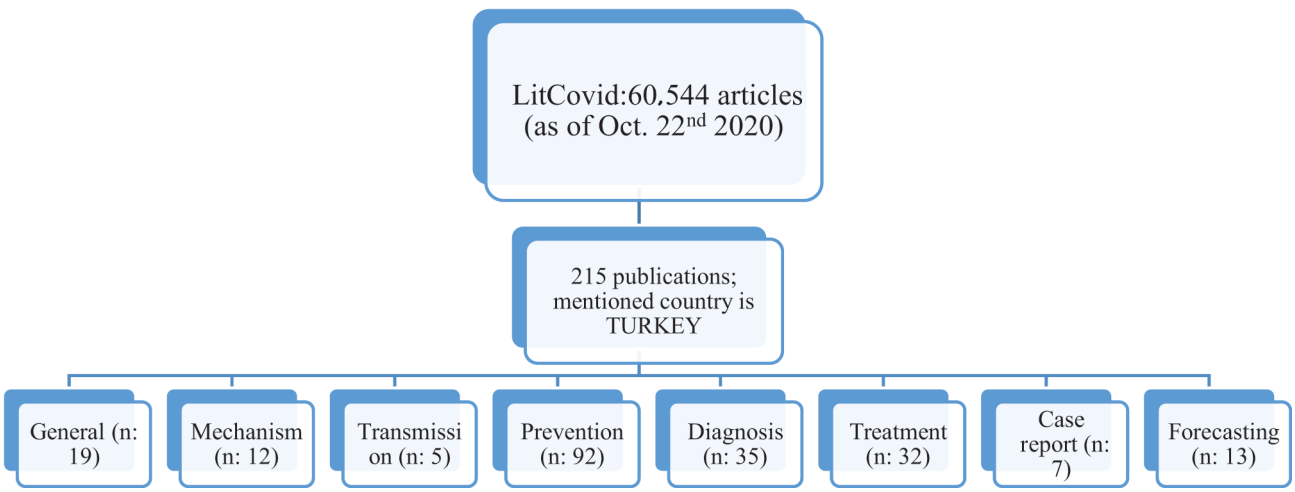

Figure 2. COVID-19 Published addressed by Turkish Research Center (as of 22nd October, 2020).

general, mechanism, transmission, prevention, diagnosis, treatment, case reports and forecasting. LitCovid indexed selected publications from Turkey are depicted in the tables (Table 1-8.) below.

4. Pathobiology of COVID-19

The mean incubation period for COVID-19 is 6.4 days, ranging from 2.1 days to 25 days with potential asymptomatic transmission. Cardiovascular disease, hypertension and diabetes mellitus were the most common background diseases [62]. The clinical presentation spectrum of disease is very heterogeneous. The mean nasopharyngeal swab viral load of severe COVID-19 patients were 60-fold higher as compared to mild cases , suggesting an association between higher viral load and adverse clinical outcomes. There are several studies done regarding typing of isolated viruses in Turkey Pavel et al. successfully isolated SARS-CoV-2 virus from a patient with confirmed COVID-19 in Turkey. The study showed that hCoV-19/Turkey/ERAGEM-001/2020 was closely clustered with

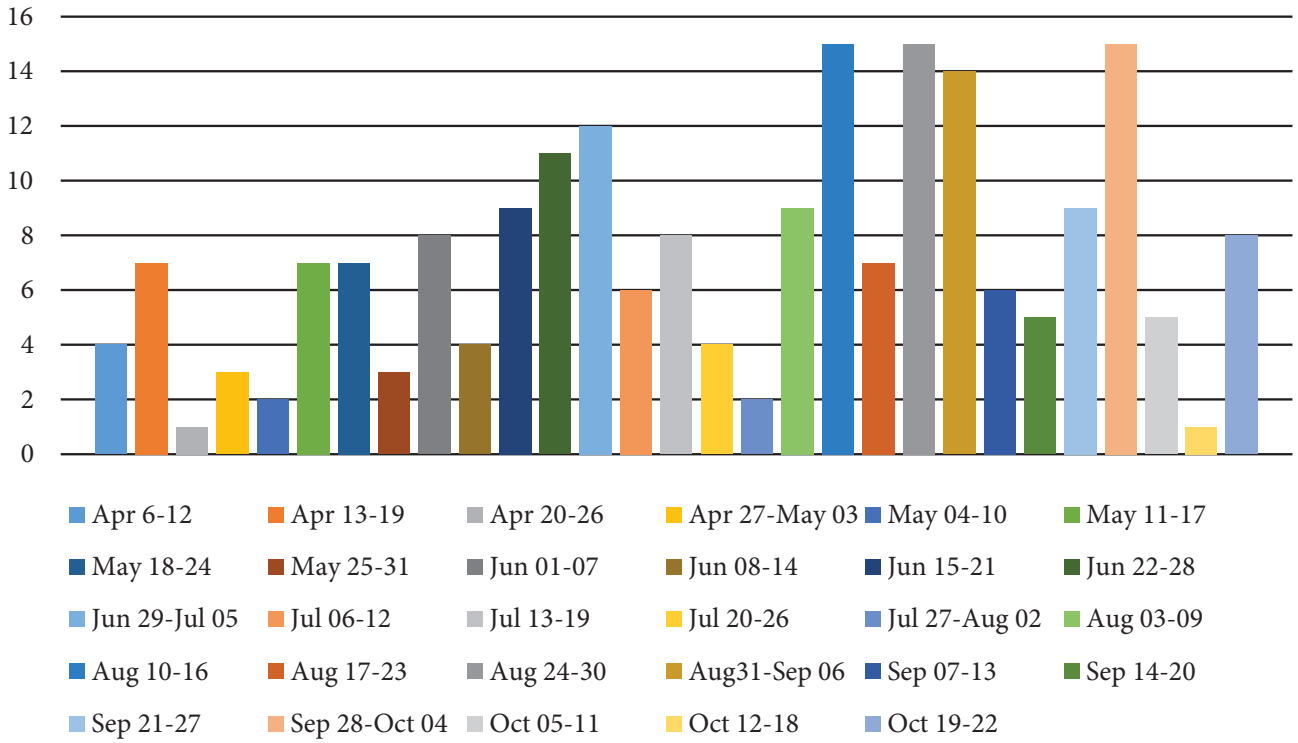

Figure 3. Weekly publications in Turkey from 6th April to 22nd October, 2020.

Table 1. Selected "general subgroup" of Turkish COVID-19 publications indexed in LitCovid.

General	Authors	Study
	Hasoksuz et al.	Coronaviruses and SARS-COV-2 (1)
	Haberal et al.	COVID-19 UPDATE (2)
	Halaclı et al.	Critically ill COVID-19 patient (3)

other strains primarily from Australia, Canada, England, Iran, and Kuwait [5]. Karacan et al. investigated genomes of isolated viruses form patients living in Istanbul to figure out influence of viral factors on COVID-19 disease characteristics [15]Ilker</author><author>Akgun, Tugba Kizilboga</author><author>Agaoglu, N Bugra</author><author>Irvem, Arzu</author><author>Alkurt, Gizem</author><author>Yildiz, Jale</author><author>Kose, Betsi</author><author>Ozel, A Serra</author><author>Altunal, L Nilsun</author><author>Can, Nisan Denizce</author></authors></contributors><titles><title>The origin of SARS-CoV-2 in Istanbul: Sequencing findings from the epicenter of the pandemic in Turkey</title><secondary-title>Northern Clinics of İstanbul</secondary-title></titles><periodical><full-title>Northern Clinics of İstanbul</full-title></periodical><pages>203</pages><volume>7</volume><number>3</number><dates><year>2020</year></dates><urls></urls></record></Cite></EndNote>. Angiotensin-converting enzyme 2 (ACE2), a major component of the renin angiotensin system (RAS), is the principal receptor of the SARSCoV-2 [7]. COVID-19 disease begins with the binding of the virus to ACE2 receptors expressed in wide variety of tissues. Many clinical characteristics of severe patients are unique to COVID-19. Most of the patients exert a self-limiting viral respiratory disease which ends with the development of neutralizing anti-viral T cell and antibody immunity. The exaggerated immune response against virus is primary factor for development of severe disease [11]. Tastan et al. showed that T cells and NKT cells can be stimulated with the virus and can be assessed significantly in an in-vitro setup. Additionally, a decrease in B cell population in higher concentrations of the

Table 2. Selected "mechanism subgroup" of Turkish COVID-19 publications indexed in LitCovid.

Mechanism	Authors	Study
	Pavel et al.	Isolation and characterization of severe acute respiratory syndrome coronavirus 2 in Turkey (5)
	Batur et al.	The role of DBP gene polymorphisms in the prevalence of new coronavirus disease 2019 infection and mortality rate (6)
	Ciftciler et al.	COVID-19, renin-angiotensin system and hematopoiesis (7)
	Bolay et al.	COVID-19 is a real headache! (8)
	Ozdag et al.	Coronavirus disease 2019 (COVID-19) from the point of view of neurologists: observation of neurological findings and symptoms during the combat against a pandemic (9)
	Ciftciler et al.	Local bone marrow renin-angiotensin system and covid-19 (10)
	Ozturk et al.	COVID-19: pathogenesis, genetic polymorphism, clinical features and laboratory findings (11)
	Demir et al.	Identification of the nucleotide substitutions in 62 SARS-CoV-2 sequences from Turkey (12)
	Tastan et al.	SARS-CoV-2 isolation and propagation from Turkish COVID-19 patients (13)
	Adebali et al.	Phylogenetic analysis of SARS-CoV-2 genomes in Turkey (14)
	Karacan et al.	The origin of SARS-CoV-2 in Istanbul: sequencing findings from the epicenter of the pandemic in Turkey (15)
	Soy et al.	Cytokine storm in COVID-19: pathogenesis and overview of anti-inflammatory agents used in treatment (16)
	Azkur et al.	Immune response to SARS-CoV-2 and mechanisms of immunopathological changes in COVID-19 (17)
	Tufan et al.	COVID-19, immune system response, hyperinflammation and repurposing antirheumatic drugs (18)

Table 3. Selected "transmission subgroup" of Turkish COVID-19 publications indexed in LitCovid.

Transmission	Authors	Study
	Çoskun et al.	The spread of COVID-19 virus through population density and wind in Turkey cities (19)
	Gul et al.	Transmission dynamics of Covid-19 in Italy, Germany and Turkey considering social distancing, testing and quarantine (20)
	Bulut et al.	Epidemiology of COVID-19 (21)
	Marim et al.	Lessons learned so far from the pandemic: a review on pregnants and neonates with COVID-19 (22)
	Kalafat et al.	Lung ultrasound and computed tomographic findings in pregnant woman with COVID-19 (23)
	Aktas et al.	Gut-lung axis and dysbiosis in COVID-19 (24)

inoculums was seen; probably activated and proliferated T cells interfered with B cell proliferation [13]. Severe lymphopenia and eosinopenia, extensive pneumonia and lung tissue damage, a cytokine storm leading to acute respiratory distress syndrome and multiorgan failure are seen in severe patients with COVID 19. Lymphopenia causes a defect in antiviral and immune regulation. The cytokine storm begins with extensive activation of cytokine-secreting cells with innate and adaptive immune mechanisms of both which contribute to poor prognosis [17].

5. Diagnosis of COVID-19

Due to its strong infectious potential, it is essential to diagnose COVID-19 rapidly and accurately to reduce the risk of transmission and as a future goal to treat cases promptly for reducing mortality . The most important mode of transmission of the virus is through respiratory droplets

Table 4. Selected "prevention subgroup" of Turkish COVID-19 publications indexed in LitCovid.

Prevention	Authors	Study
	Satici et al.	Adaptation of the fear of COVID-19 scale: its association with psychological distress and life satisfaction in Turkey (25)
	Batu et al.	Implications of COVID-19 in pediatric rheumatology (26)
	Sahin et al.	COVID-19 pandemic: its impact on liver disease and liver transplantation (27)
	Ozturk et al.	Plastic surgery and the COVID-19 pandemic: a review of clinical guidelines (28)
	Gok et al.	Recommendations for trauma and emergency general surgery practice during COVID-19 pandemic (29)
	Altun et al.	The most common pediatric and adult dermatology patient complaints in a month of the COVID-19 pandemic in Turkey (30)
	Acikgoz et al.	The early impact of the Covid-19 pandemic on the global and Turkish economy (31)
	Demirbilek et al.	COVID-19 outbreak control, example of ministry of health of Turkey (32)
	Sarioglu et al.	Asthma and COVID-19: what do we know? (33)
	Gul et al.	Transmission dynamics of Covid-19 in Italy, Germany and Turkey considering social distancing, testing and quarantine (20)
	Ayaz et al.	Out-patient management of patients with COVID-19 on home isolation (34)
	Tanacan et al.	The rate of SARS-CoV-2 positivity in asymptomatic pregnant women admitted to hospital for delivery: experience of a pandemic center in Turkey (35)
	Demir et al.	COVID-19 in kidney transplant recipients: a multicenter experience in Istanbul (36)
	Djilali et al.	Coronavirus pandemic: a predictive analysis of the peak outbreak epidemic in South Africa, Turkey, and Brazil (37)
	Ankarali et al.	A statistical modeling of the course of COVID-19 (SARS-CoV-2) outbreak: a comparative analysis (38)
	Guner et al.	COVID-19: prevention and control measures in community (39)
	Bulut et al.	Epidemiology of COVID-19 (21)
	Agalar et al.	Protective measures for COVID-19 for healthcare providers and laboratory personnel (40)
	Gul et al.	COVID-19 and dermatology (41)
	Kuman et al.	COVID-19 related anxiety in people living with HIV: an online cross-sectional study (42)

from person to person, contact with infected people and rarely through fecal-oral transmission. Studies have shown that cases often have a history of traveling to the outbreak area or contact with infected people. The gold standard for diagnosis is real-time reverse transcriptase polymerase chain reaction (rRT-PCR) testing. However, rRT-PCR test results usually require many hours to be produced. It has also been reported that rRT-PCR tests show false negative diagnoses in the early stages of the disease. Thoracic CT provides rapid results and has demonstrated diagnostic value when rRT-PCR test is negative in the early stages of the disease. Aslan et al. evaluated the diagnostic performance of low-dose chest computed tomography in patients under investigation for COVID-19. They suggest isolating patients with typical CT findings, but negative rRT-PCR results, and repeating rRT-PCR to avoid misdiagnosis [46]. When we looked at the clinical findings, fever, shortness of breath, cough and travel to endemic districts were questioned as major screening parameters at the early stages of the epidemic. However, in the later stages of the epidemic, different symptomatologies such as headache, sore throat, nasal congestion, rhinorrhea, fatigue, tonsillar swelling and conjunctivitis were reported. Among these, frequent chemosensor dysfunctions involving olfaction and taste were reported. Sayın et al. identified the taste and smell impairment in COVID-19 patients. The study reported that COVID-19–positive subjects are strongly exhibited smell/taste impairment [44]. Solak et al. reported that of the 18% of 382 patients diagnosed with COVID-19 exhibited dermatological symptoms. The most common complaints shown in the study were rash, bruising and sores [47]. It has been reported that approximately 6-10% of symptomatic

Table 5. Selected "diagnosis subgroup" of Turkish COVID-19 publications indexed in LitCovid.

Diagnosis	Authors	Study
	Tezer et al.	Novel coronavirus disease (COVID-19) in children (43)
	Ozdag et al.	Coronavirus disease 2019 (COVID-19) from the point of view of neurologists: observation of neurological findings and symptoms during the combat against a pandemic (9)
	Sayin et al.	Taste and smell impairment in covid-19: an aao-hns anosmia reporting tool-based comparative study (44)
	Aktas et al.	Gut-lung axis and dysbiosis in COVID-19 (24)
	Ozturk et al.	COVID-19: pathogenesis, genetic polymorphism, clinical features and laboratory findings (11)
	Bolay et al.	COVID-19 is a real headache! (8)
	Kalafat et al.	Lung ultrasound and computed tomographic findings in pregnant woman with COVID-19 (23)
	Kanburoglu et al.	A multicentered study on epidemiologic and clinical characteristics of 37 neonates with community-acquired COVID-19 (45)
	Ayaz et al.	Out-patient management of patients with COVID-19 on home isolation (34)
	Aslan et al.	Diagnostic performance of low-dose chest CT to detect COVID-19: a Turkish population study (46)
	Solak et al.	Cutaneous symptoms of patients diagnosed with covid-19 in one province: a cross-sectional survey (47)
	Esme et al.	Older adults with coronavirus disease 2019; a nationwide study in Turkey (48)
	Kutlu et al.	Relative changes in the pattern of diseases presenting in dermatology outpatient clinic in the era of the COVID-19 pandemic (49)
	Yayla et al.	Characteristics and management of children with COVID-19 in Turkey (50)
	Aksu et al.	Factors determining COVID-19 pneumonia severity in a country with routine BCG vaccination (51)
	Sarinoglu et al.	Tuberculosis and COVID-19: an overlapping situation during pandemic (52)
	Yigenoglu et al.	The outcome of COVID-19 in patients with hematological malignancy (53)
	Oncel et al.	A multicenter study on epidemiological and clinical characteristics of 125 newborns born to women infected with COVID-19 by Turkish Neonatal Society (54)
	Alpaydın et al.	Clinical and radiological diagnosis of non-SARS-CoV-2 viruses in the era of Covid-19 pandemic (55)
	Tanacan et al.	The rate of SARS-CoV-2 positivity in asymptomatic pregnant women admitted to hospital for delivery: experience of a pandemic center in Turkey (35)
	Yassa et al.	Outcomes of universal SARS-CoV-2 testing program in pregnant women admitted to hospital and the adjuvant role of lung ultrasound in screening: a prospective cohort study (56)
	Tuncer et al.	QT interval evaluation associated with the use of hydroxychloroquine with combined use of azithromycin among hospitalised children positive for coronavirus disease 2019 (57)
	Guner et al.	COVID-19 experience of the major pandemic response center in the capital: results of the pandemic's first month in Turkey (58)
	Sahin et al.	A pandemic center's experience of managing pregnant women with COVID-19 infection in Turkey: a prospective cohort study (59)
	Demir et al.	COVID-19 in kidney transplant recipients: a multicenter experience in Istanbul (36)
	Ozger et al.	The factors predicting pneumonia in COVID-19 patients: preliminary results of a university hospital in Turkey (60)
	Korkmaz et al.	The epidemiological and clinical characteristics of 81 children with COVID-19 in a pandemic hospital in Turkey: an observational cohort study (61)

Table 5. (Continued).

	Akyil et al.	What we learned about COVID-19 so far? Notes from underground (62)
	Çinkooglu et al.	CT imaging features of COVID-19 pneumonia: initial experience from Turkey (63)
	Satici et al.	Performance of pneumonia severity index and CURB-65 in predicting 30-day mortality in patients with COVID-19 (64)
	Arslan et al.	Incidence and immunologic analysis of Coronavirus disease (COVID-19) in hemodialysis patients: a single-center experience (65)
	Medetalibeyoglu et al.	Characteristics of the initial patients hospitalized for COVID-19: a single-center report (66)
	Goker et al.	The effects of blood group types on the risk of COVID-19 infection and its clinical outcome (67)
	Gul et al.	COVID-19 and dermatology (41)
	Sipahi et al.	Characteristics and mortality determinants of COVID-19 patients undergoing haemodialysis (68)
	Sayinalp et al.	Perspectives for the immune plasma treatment of COVID-19 (69)
	Calik et al.	Outcome of non-critical COVID-19 patients with early hospitalization and early antiviral treatment outside the ICU (70)
	Yormaz et al.	The impact of the "low molecular weight heparin" administration on the clinical course of the COVID-19 disease (71)
	Sonkaya et al.	Cerebral hemodynamic alterations in patients with Covid-19 (72)

COVID-19 patients had headache. Significant features of headache presentation in symptomatic COVID-19 patients are presented as new onset, moderate-severe, bilateral headache in the temporoparietal, forehead or periorbital regions with pulse or pressure quality [8]. As the whole world, there are articles from Turkey related to COVID-19 infection characteristics in children. Approximately 1 -5% of cases diagnosed with COVID-19 are children. Overall, COVID-19 appears to cause less severe disease in children than adults. Approximately 90% of pediatric patients are grouped into asymptomatic, mild or moderate disease. However, 6.7% of cases were severe ones. Severe disease has been reported to occur generally in patients younger than 1 year of age and those children with an underlying disease [43].

6. Treatment of COVID-19

Until now, there has been no effective treatment for COVID-19. Several potential drug candidates, including lopinavir/ritonavir, favipiravir, neuraminidase inhibitors, remdesivir, umifenovir (Arbidol), azithromycin, and hydroxychloroquine (HCQ)/ chloroquine (CQ) have been suggested [62]. Results of studies are conflicting or insufficient to make clear recommendations. Many in vitro studies demonstrated efficacy of anti-viral agents for viral replication including; protease inhibitors including lopinavir / ritonavir, favipiravir, and the nucleoside analogue remdesivir [62].

The optimum method of controlling an outbreak with a rapidly spreading respiratory pathogen is the isolation of the patients at healthcare facilities under appropriate respiratory precautions. However, this might result in shortage in hospital beds for patients who need respiratory support, hence Turkish Ministry of Health released a guideline for COVID-19 patients who can self-isolate themselves at home [34]. Convalescent plasma is suggested as an adjunct treatment to anti-viral therapy in COVID 19 patients. It has been proposed that protective effect of convalescent plasma would continue for weeks upon administration. For this treatment, donor is carefully evaluated and 200-600 mL plasma is collected with apheresis devices [73]. Hacibekiroglu et al. reported observations on effect of convalescent plasma according to blood groups in the management of critically ill patients diagnosed with COVID-19. They reported that duration in intensive care stay, the rates of mechanical ventilator and vasopressor support, the case fatality rate and discharge rate were lower in patients who received convelescent plasma containing anti-A Ab than not containing anti-A Ab [78]. Thrombotic complications due to inflammation, cytokine-mediated microvascular damage and pulmonary thromboinflammation occur as an important problem in patients infected with COVID-19.

There are different studies conducted on pediatric patients in the treatment group. Yayla et al. evaluated 220 pediatric patients with COVID-19, of which 48.2% were male, with a median age of 10 years, and 9.5% had underlying diseases. Extracorporeal membrane oxygenation was needed for 2 patients (0.9%) and mechanic ventilation was needed for 3 patients (1.4%). Available therapies were

Table 6. Selected "treatment subgroup" of Turkish COVID-19 publications indexed in LitCovid.

Treatment	Authors	Study
	Ciftciler et al.	COVID-19, renin-angiotensin system and hematopoiesis (7)
	Sarioglu et al.	Asthma and COVID-19: what do we know? (33)
	Batu et al.	Implications of COVID-19 in pediatric rheumatology (26)
	Tezer et al.	Novel coronavirus disease (COVID-19) in children (43)
	Aktas et al.	Gut-lung axis and dysbiosis in COVID-19 (24)
	Yigenoglu et al.	Convalescent plasma therapy in patients with COVID-19 (73)
	Tastan et al.	SARS-CoV-2 isolation and propagation from Turkish COVID-19 patients (13)
	Kanburoglu et al.	A multicentered study on epidemiologic and clinical characteristics of 37 neonates with community-acquired COVID-19 (45)
	Ayaz et al.	Out-patient management of patients with COVID-19 on home isolation (34)
	Esme et al.	Older adults with coronavirus disease 2019; a nationwide study in Turkey (48)
	Yayla et al.	Characteristics and management of children with COVID-19 in Turkey (50)
	Aksu et al.	Factors determining COVID-19 pneumonia severity in a country with routine BCG vaccination (51)
	Yigenoglu et al.	The outcome of COVID-19 in patients with hematological malignancy (53)
	Oncel et al.	A multicenter study on epidemiological and clinical characteristics of 125 newborns born to women infected with COVID-19 by Turkish Neonatal Society (54)
	Tuncer et al.	QT interval evaluation associated with the use of hydroxychloroquine with combined use of azithromycin among hospitalised children positive for coronavirus disease 2019 (57)
	Sahin et al.	A pandemic center's experience of managing pregnant women with COVID-19 infection in Turkey: a prospective cohort study (59)
	Demir et al.	COVID-19 in kidney transplant recipients: a multicenter experience in Istanbul (36)
	Ozger et al.	The factors predicting pneumonia in COVID-19 patients: preliminary results of a university hospital in Turkey (60)
	Korkmaz et al.	The epidemiological and clinical characteristics of 81 children with COVID-19 in a pandemic hospital in Turkey: an observational cohort study (61)
	Akyıl et al.	What we learned about COVID-19 so far? Notes from underground (62)
	Satici et al.	Performance of pneumonia severity index and CURB-65 in predicting 30-day mortality in patients with COVID-19 (64)
	Sargin et al.	Potential anti-influenza effective plants used in Turkish folk medicine: a review (74)
	Surmelioglu et al.	Physicians' knowledge of potential covid-19 drug-drug interactions: an online survey in Turkey (75)
	Soy et al.	Cytokine storm in COVID-19: pathogenesis and overview of anti-inflammatory agents used in treatment (16)
	Azkur et al.	Immune response to SARS-CoV-2 and mechanisms of immunopathological changes in COVID-19 (17)
	Tufan et al.	COVID-19, immune system response, hyperinflammation and repurposing antirheumatic drugs (18)
	Yavuz et al.	Antiviral treatment of COVID-19 (76)
	Goker et al.	The effects of blood group types on the risk of COVID-19 infection and its clinical outcome (67)
	Gul et al.	COVID-19 and dermatology (41)
	Ozturk et al.	Melatonin, aging and COVID-19: could melatonin be beneficial for COVID-19 treatment in elderly? (77)

Table 6. (Continued).

	Calik et al.	Outcome of non-critical COVID-19 patients with early hospitalization and early antiviral treatment outside the ICU (70)
	Sipahi et al.	Characteristics and mortality determinants of COVID-19 patients undergoing haemodialysis (68)
	Hacibekiroğlu et al.	Efficacy of convalescent plasma according to blood groups in COVID-19 patients (78)
	Yormaz et al.	The impact of the "low molecular weight heparin" administration on the clinical course of the COVID-19 disease (71)
	Sarialioglu et al.	Hepatitis A susceptibility parallels high COVID-19 mortality (79)

Table 7. Selected "case report subgroup" of Turkish COVID-19 publications indexed in LitCovid.

Case report	Authors	Study
	Dertlioglu et al.	Skin manifestations in COVID-19: a case series of five patients from Elazig, Turkey (80)
	Gorkem et al.	COVID-19 pneumonia in a Turkish child presenting with abdominal complaints and reversed halo sign on thorax CT (81)
	Yakar et al.	Management of an organ donation process in COVID-19 pandemic: first case of Turkey (82)
	Aykac et al.	Rethinking the first COVID-19 death in Turkey (83)
	Abdulkadir et al.	Coexistence of COVID-19 and acute ischemic stroke report of four cases (84)
	Altuntas et al.	HIV/SARS-CoV-2 coinfected patients in Istanbul, Turkey (85)

Table 8. Selected "forecasting subgroup" of Turkish COVID-19 publications indexed in LitCovid.

Forecasting	Authors	Study
	Kirbas et al.	Comparative analysis and forecasting of COVID-19 cases in various European countries with ARIMA, NARNN and LSTM approaches (86)
	Djilali et al.	Coronavirus pandemic: a predictive analysis of the peak outbreak epidemic in South Africa, Turkey, and Brazil (37)
	Acar et al.	Projecting the course of COVID-19 in Turkey: a probabilistic modeling approach (87)
	Ankarali et al.	A statistical modeling of the course of COVID-19 (SARS-CoV-2) outbreak: a comparative analysis (38)
	Acar et al.	Projecting the course of COVID-19 in Turkey: a probabilistic modeling approach (87)

used in 6 patients (2.7%), with hydroxychloroquine being the most commonly used drug either alone (1 patient) or in combination with favipiravir (5 patients). Two patients (0.9%) had died and 9 (4.1%) were still hospitalized during the study period. Although the disease course of COVID-19 seems to be mild in children, critical illness is important, and the treatment method primarily should consist of supportive care [50]. Sahin et al. reported a study related with 100 pregnant women who were suspected diagnosis of SARS-CoV-2 infection. Twenty-nine of the patients had the diagnosis confirmed by RT-PCR. Eight of the remaining 71 cases had clinical findings highly suggestive for COVID-19. Ten (34.5%) of the confirmed cases had co-morbidities. COVID-19 therapy was given to 10 (34.5%) patients. There were no intensive care unit admission among patients. Pregnancy complications were seen in 7 (24.1%) patients. Half of the births (5/10) were cesarean deliveries. None of the neonates were positive for SARS-CoV-2. Samples of breastmilk were also negative for the virus. Three newborns needed neonatal intensive care admission for insults other than COVID-19 [59].

7. Conclusion

Human being is tackling with dual threat, pandemic and its' socioeconomic consequences. Efforts are ongoing globally to find a definitive cure for the SARS-CoV-2

infection. There is significant contribution of Turkish researchers to current scientific knowledge on COVID-19, mainly on transmission, passive prevention, disease features, diagnosis and partly treatment approaches which constitutes initial, characterization step for a new disease. Advanced steps involve molecular characterization, active prevention and development of effective treatments against virus which need to be done more coordinated and with international collaboration.

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