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.

Current Research in Translational Medicine 70 (2022) 103357

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Editorial

Two years of COVID-19: A summary about the implication of current research in translational medicine in the efforts against the pandemic

It's been two years since COVID-19 has been recognized as a pandemic, and the heavy burden it's had on healthcare systems is far from being clearly evaluated.

No aspect of healthcare or patient treatment was spared from conflicting policies, leaving both medical teams and many patients marginalized by ever shifting "new normal" and concepts of prioritization.

Within this pair of years, scientific journals in general, and, more specifically, medical and biological journals were in the eye of tornado. Data size was enormous and the thirst for COVID-19-related knowledge was vaster than it has ever been for any infectious disease.

Current Research in Translational Medicine was no exception. It faced, along with\ peer publications, waves and waves of submitted manuscripts, precious pieces of science that must be evaluated both rapidly *and* with precision. Editors and reviewers, being healthcare workers, stood beneath the downpour of disturbed work schedules, extra shifts and, evidently, negotiating new and different risks. Nevertheless, these gatekeepers have found their way to treat submitted articles applying high-quality scientific standards in order to ensure the integrity of the review process while also maintaining efficiency.

These efforts joined forces with the collective global initiative to deliver scientific extracts and enhance communication between not only researchers but also with the wider medical community working to defeat the pandemic in a timely manner.

In this editorial, we will walk you through the most important COVID-19-related articles published in our journal. Please note, the number of peer submissions is a lot greater due to the high number of unaccepted manuscripts.

As early as April 18th, 2020, we published an editorial discussing the use of chloroquine as an anti-SARS-CoV-2 agent. The article concluded that the use of antimalarials remains controversial. Nevertheless, it remarked that some countries, including developing nations, have proceeded to use such agents.

The article emphasized that before the healthcare community commits to indiscriminate use of antimalarial drugs in minimally symptomatic or asymptomatic individuals, there is an urgent need to prioritize assessment of anti-Covid-19 cellular and humoral immunity in patients who have already received said drugs [1].

At the end of May 2020, a review of potential treatments to date in COVID-19 patients according to the stage of the disease was published, highlighting the importance of adapting COVID-19 treatment strategies according to disease stage.

The authors concluded that new potential strategies might be seductive in light of the disastrous situation currently faced by many countries. Nevertheless, the urgent need for a cure does not justify unauthorised use by national health regulatory authorities.

Meanwhile, preventive interventions coupled with clear local and international management guidelines must always be respected, in order to mitigate damage and permit more exhaustive and conclusive research to be conducted [2].

Nearly a month later, another review about COVID-19 paraclinical diagnostic tools: Updates and future trends was published. In this review, authors discussed techniques being used and experimented with at that time: PCR; serological tests; flowcytometric approaches; Point-of-Care tests; stool analysis; radiological and pathological aspects and approaches.

The article concluded that efforts must benefit from new technologies, including molecular biology and that rapidity and accessibility may also represent important objectives for new research.

Of note, the combination of well-conducted clinical examination with adequate laboratory tests and adapted radiological exams are still the most potent arsenal against this disease [3].

The aforementioned notion about the need to include genetic and molecular biological data in COVID-19-related research was presented in the article "Sex-mediated effects of ACE2 and TMPRSS2 on the incidence and severity of COVID-19: The need for genetic implementation (September 2020).This letter to the editor summarized data highlighting that though the actual role of ACE Del allele in COVID-19 incidence and mortality remains debatable, both ACE2 and TMPRSS2 gene over expression may support the hypothesis of COVID-19 male predominance along with higher disease severity and worse outcomes [4].

In their original article entitled "Biological responses to COVID-19: Insights from physiological and blood biomarker profiles", Zakeri et al., basing their research on serial, routinely collected, physiological and blood biomarker values, attempted to characterize biological responses among patients hospitalized with severe COVID-19.

They studied patient characteristics, comorbidities, ICU admissions and mortality. They suggested a five-class categorization [5]:

- **Class 1:** *Typical response* exhibited a moderately elevated and rising CRP, stable lymphopaenia, and the lowest rates of 14-day adverse outcomes.
- **Class 2**: *Rapid hyperinflammatory response* comprised older patients, with higher admission white cell and neutrophil counts, which declined over time, accompanied by an extremely high (and rising) CRP and platelet count, and exhibited the highest mortality risk.
- **Class 3**: *Progressive inflammatory response* was similar to the *Typical response* but with a higher (and rising) CRP, though similar mortality rate.

https://doi.org/10.1016/j.retram.2022.103357

- **Class 4**: *Inflammatory response with kidney injury* presented prominent lymphopaenia, moderately elevated (and rising) CRP, and severe renal failure.
- **Class 5**: *Hyperinflammatory response with kidney injury* comprised older patients, with an extremely high (and rising) CRP, and severe renal failure that attenuated over time.

Another aspect of COVID-19′s biological profile is its association with inflammatory markers. A letter to the editor, published in May 2021, discussed the relationship between elevated COVID-19 PCT levels and bacterial coinfection. Elevated PCT level is associated with higher severe disease risk and higher overall mortality risk. The author discussed whether an increased PCT level in COVID-19 patients, especially in severe cases, would only be assumed as bacterial coinfection? Or could PCT level increase in SARS-CoV-2 infection without bacterial coinfection? [6]

Another interesting publication, "A simple score (Biovid-19) based on biological parameters predicts transfer to intensive care units and death in COVID-19 patients", stated that a simple score based on biological parameters could predict transfer to intensive care units and death in COVID-19 patients.

The data discussed in this study claims that few common and broadly available biological parameters (Na, K and PT) can easily and reliably identify patients at risk of severe COVID-19 evolution.

Aurhor assumed that this prognostic score is useful to identifying high-risk patients early, requiring close monitoring, and could help provide guidance for early ICU admittance [7].

A review about the potential use of ivermectin for the treatment and prophylaxis of SARS-CoV-2 infection was also published. It concluded, at the time of its writing, that the Frontline COVID-19 Critical Care Alliance (FLCCC) recommends the use of oral ivermectin for both prophylaxis and early-treatment of COVID-19 [8].

Cancer treatment complications in the time of COVID-19 were also presented by two letters to the editor published in October 2021. The first is about ibrutinib treatment for mantle cell lymphoma patients in the time of COVID-19 from a clinical observation point of view [9], while the second discussed special aspects of COVID-19 management in patients during autologous stem cell transplant for autoimmune diseases [10].

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Received 26 April 2022
Accepted 5 June 2022

Available online 7 June 2022

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