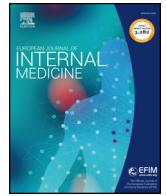




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Letter to the Editor

Balancing the need for rapid and rigorous scientific data during early phase of the COVID-19 pandemic: A further role for the scientific community



The primary focus of biomedical sciences is to apply scientific methodology to the biology of human disease with the aim of producing recommendations to be adopted in healthcare. The scientific method has underpinned the development of knowledge since at least the 17th century. It involves careful data acquisition, correct analysis and interpretation, bias avoiding and dissemination of the results. Scientific publications usually imply a peer reviewing process that increases the reliability and thrust-ability of reported results. Biomedical information and discoveries are better considered if they come from a well-known research group, a worldwide famous Institution and if they are published in a top-ranked journal. However, it may take a long before this knowledge can be applied to clinical practice, also because novel findings often require validation of results and specifically-designed clinical trials.

The COVID-19 pandemic represents an example of what may happen when this process is forcefully much faster. Indeed, it seemed, and it was necessary to describe in the shortest possible time a new disease including ways of contagion diffusion, signs and symptoms, risk factors for a severe outcome, potential curative as well as potentially dangerous drugs. Starting from the very beginning of the emergency, clinicians involved in the care of COVID-19 infected patients started to collect and share data. As a result, we rapidly learned about the occurrence of flu-like symptoms evolving in Acute Respiratory Distress Syndrome due to interstitial pneumonia associated with multiple organ failure, however, we also faced results that were disconfirmed shortly afterwards (i.e. in a few weeks). Just to give a few examples of uncertainty, the controversial recommendations on the use of corticosteroids, the possible contagious from asymptomatic COVID-19 infected people and the delay in identifying the thrombophilic state as a main COVID-19 consequence. As a result, several treatment options or strategies for preventing complications were proposed, based, at least in some cases on anecdotic observations. We do acknowledge that emergency forced Clinicians to communicate as rapidly as possible every single potentially relevant data and, in turn, also Reviewers and scientific journals to rapidly disseminate the novel findings. Hitherto, we must honestly admit that at least some of these preliminary data might have complicated the management of patients with COVID-19, potentially causing improper treatments. The aim of this letter is to

constructively analyze what happened and how the Scientific Community could have limited this aspect with the ultimate goal to support in any possible way the Clinicians directly involved in primary care. Lack of rigorous application of the scientific methodology could be, at least partially, responsible of a number of errors: i) once a plausible explanation of one of the main symptoms was given (e.g. interstitial pneumonia causes SARS) no additional causes of SARS were searched (bias that delayed the discovery of the thrombotic and cardiovascular symptoms); ii) symptoms that may have facilitated an early diagnosis were neglected and/or underestimated (e.g. anosmia, dysgeusia, etc.). Several strategies could be envisaged to reduce this kind of errors and provide without delay potentially relevant information. Possible strategies include: 1) early involvement of professionals with previous experience in clinical research in data collection and interpretation; 2) disclaim that the data and analysis included in the manuscript were collected and the manuscript was reviewed during an emergency period and this may affect its quality. Moreover, it can be suggested to modify the reviewing procedure of scientific publication. This would mainly consist in asking Reviewers to briefly comment (and include in the study) possible biases, limitations and potentially relevant aspects not taken into account by the Authors, clearly without delaying the review process. In conclusion, what happened in the early phase of COVID-19 pandemic should be taken seriously into account by the Scientific Community, and a discussion should be opened aimed at providing solutions for “*The Science of Emergency*”

Declaration of Competing Interest

The authors declare no competing interests.

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