

COVID-19 and neurological research: potential impact and needs for invigoration

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Abstract

The current COVID-19 pandemic is affecting public health and economy worldwide. This pandemic has also affected the working and management strategies of clinical practices, healthcare centres, academics, and research centres. The academic and research institutions, students, and research scholars are diverging towards the online platform such as zoom and google meet for teaching, discussing, and sharing knowledge and ideas. Hospitals have also started following the concept of telemedicine for prescribing medicines to patients. In the current situation, on one side the research related to COVID-19 is conducted at an unprecedented rate whereas on the other side the research concerned with other fields including the CNS research is affected adversely. Initially, during the lockdown, the research activities were resumed, and even after the lockdown is withdrawn the situations are no longer better. It is very challenging to carry out the research activities at an adequate pace keeping in view the present pandemic situation.

LETTER TO EDITOR

COVID-19 and neurological research: potential impact and needs for invigoration

The COVID-19 outbreak has resulted in disruption of various preclinical and clinical neurological researches as a result of shifting of focus on understanding and defeating the disease. The following information will help in developing an insight into challenges faced in carrying out neurological research activities.

The current COVID-19 pandemic is affecting public health and economy worldwide. This pandemic has also affected the working and management strategies of clinical practices, healthcare centres, academics, and research centres. The academic and research institutions, students, and research scholars are diverging towards the online platform such as zoom and google meet for teaching, discussing, and sharing knowledge and ideas. In the current situation, on one side the research related to COVID-19 is conducted at an unprecedented rate whereas on the other side the research concerned with other fields including the CNS research is affected adversely. It is very challenging to carry out the research activities at an adequate pace keeping in view the present pandemic situation.

The CNS diseases constitute more than 600 conditions and for most of them, only symptomatic therapy is available. There is a need as well as a wide scope for research and drug development for neurological and neurodevelopmental disorders. The commonly growing research area in CNS includes diseases like Alzheimer's, Parkinson's, autism spectrum disorder, treatment-resistant epilepsy and multiple sclerosis, ADHD, and depression. In recent years upward trends in CNS research have been seen. The increased research and clinical trials require more funding and resources. But, due to the COVID-19 pandemic, drastic changes can be seen in the allocation of funds to different types of trials and a sudden shift towards the COVID-19 funding is observed. Recently \$14 billion is reduced from total allotted funding of \$54 billion for an autism-related project in the state of California¹. Also, the state has planned to reduce 10% of funding for public higher education in the state. This sudden shift of the funds has raised a serious concern for the CNS research and

trials and certainly could put pressure on the sponsors. Further recruiting patients in the CNS related trials keeping in view the current pandemic situation is also very challenging. Considering certain elements such as maintaining social distancing and wearing masks to reduce the risk of COVID-19 to patients, it is difficult for both the sponsor and the investigator to recruit the patients and conduct the trial smoothly. Certain tests need to be done before enrolling the patients into the trial and some of these tests such as ADOS for autism can't be done with masked individuals¹. So, it will again be a matter of taking risks or increasing the time and effort of the person who recruits patients. Similarly, the patient's follow-up and maintaining the timeline for taking the subsequent sample are much of consideration in the present situation. Due to the lockdown, the patients could not come and even after the lockdown they are afraid to come.

The reduced number of persons in research centres has also affected the productivity and conduct of CNS research. Also, the availability of drugs, kits, specific cell lines, and outsourcing of the test parameters are affected adversely and need to be fixed for maintaining the continuity of CNS research. The inter-institute collaborations for conducting the CNS research have also affected the productivity and conduct of CNS research as a frequent visit to other institutions and places are restricted nowadays. Although, the exchange of ideas and discussions is done via telecommunication still the problem lies in the underdeveloped countries and rural areas. Our researchers, doctors, and scientists altogether put an effort to battle the COVID-19 pandemic and its consequences still a lot have to be done for the smooth conduct of the CNS research and trials. Technologies have played an indispensable role in connecting researchers all over the world and there is a need to develop various telehealth strategies for the rapid and unhampered conduct of the CNS trials and research. Moreover, there is a need to reinvigorate neurological research as no new standard drug has been approved since long in some of the CNS disorders like Autism, ADRD, etc. These research studies could be conducted by adopting certain approaches to avoid the spread of infection in individuals participating in research or trials and researchers as well. Alterations in experimental protocols are needed for the collection of endpoint assessments safely. Otherwise, observational studies that involve direct contact must be deferred or should only be conducted distantly if possible. There are several interventions studies in which continuous provision of medical care (accessible only through research trial) is necessitated, these studies should be continued ensuring the safety of everyone involved. For the continuation of these researches for the intervention studies, certain guidelines have been approved by the US Food and Drug Administration (FDA) which provides every possible information regarding the mitigation of risk to the people involved in researches². Further, it is the responsibility of the government as well as the sponsors and the researchers to understand the importance of the CNS research and other research areas and should maintain the adequate balance between the COVID-19 research and other research areas including neurological research.

It is concluded that the continuation of research is critical even in COVID-19 era not only to avoid the repercussions of neglecting neurosciences research in coming years but also to reduce the suffering of many patients with pre-existing neurological disorders.

Declaration of Competing Interest

None

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