

## Research and COVID-19: Losing momentum every now and then

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Coronavirus disease-19 (COVID-19) has thrown numerous challenges to the medical fraternity, has crippled a lot of clinical work and has put brakes on advancements in the medical arena during this current pandemic. COVID-19 made us revamp our ways of living, our peri-operative management system, our operation theatres and our systems of clinical functioning.<sup>[1,2]</sup> It has without doubt made us revamp our research structure too.

It has become increasingly difficult to carry out non-COVID-19 research during the current pandemic as most of the frontliners are too much occupied either in taking care of the COVID-19 patients and its related complications or preparing themselves for another fresh surge of the disease.

The COVID-19 pandemic has seriously impacted postgraduate (PG) teaching and PG thesis work.<sup>[3,4]</sup> In the academic institutions, the difficulties for the medical teachers have increased manifold. The most difficult task for them is to allot a particular topic when the PG student is required to carry out the COVID-19 duties as well. Even allotting COVID-19-related research can be considered as inappropriate and unethical when the whole world is trying to avoid this infection and struggling to come out of its strong grip. Apart from the unethical issues, in the coming days, COVID-19 may suddenly diminish or the disease presentation may alter and the research has to be discontinued then.

PG students and their thesis guides on the trail of the 'right' research topic are stuck between 'COVID-19' and 'non-COVID-19' research. Not only PG students, but faculty members in academic institutions too are facing difficulties in planning research studies in the current pandemic. They have to conduct research and publish original articles and case series as per the Indian National Medical Commission (NMC) rules for faculty academic promotions in their respective medical colleges.<sup>[5]</sup> Most of the research studies are planned on elective surgical cases. In case the researcher is not able to get enough study cases as per planned sample size in the study protocol because of frequent lockdowns and lack of elective surgical cases, what will be his/her next strategy? Will planning a prospective case series be better than planning a randomised controlled trial in the prevailing circumstances? If randomised controlled trials are not feasible in the current situation, will researchers, faculty and PG students have to resort to other trial designs like retrospective studies and surveys? Will the pattern of research change as discussed in a previous editorial of the Indian Journal of Anaesthesia (IJA) as our nation has harboured highest number of COVID-19 infections?<sup>[6]</sup> Will the NMC adopt newer rules and consider case reports, clinical communications and letter to editors as minimum publication requirements for faculty promotions if the pandemic surges keep on striking the nation? Will there be a drought of genuine non-COVID-19 original research articles in the recent future? The

fear of aerosol generation and spread of COVID-19 has made techniques like regional anaesthesia and total intravenous anaesthesia popular.<sup>[7-11]</sup> So, will the research topics revolve around these areas? Most of these queries will remain unanswered if the intensity of the pandemic does not fade in the near future.

The path of non-COVID-19 research appears foggy at present. Non-COVID-19 research may require updation of many medical definitions and clinical appropriateness when selecting any particular group of patients. As we have seen so many advisories, protocols and ever-changing clinical suggestions surfacing during the current pandemic, the research activities will also need modifications and alterations in study strategies during their conduct. The research parameters need to be standardised in the immediate future, as COVID-19 parameters cannot be completely ignored from the normal research activity. As the post-COVID-19 surgical patients will likely be presenting in huge numbers, the inclusion and exclusion criteria will definitely require modifications in terms of post-COVID-19 or non-COVID-19 state, vaccinated or non-vaccinated individuals, and emergence of new comorbidities and stratification of many more risk parameters.

Even the American Society of Anaesthesiologists physical status (ASA PS) classification system needs to be modified when COVID-19 status will be included in its nomenclature. Most of the times, ASA PS I and II patients are included in research studies; nevertheless, many of the post-COVID-19 patients are not healthy and have poor physical status and thus finding ASA PS I and II cases may prove to be difficult. Currently no concrete guidelines are available for post-COVID-19 patients and data is also not uniformly available throughout the globe. The skewed data available may be rich in various biases which may make it difficult to accurately support the scientific conclusions. The current facts and observations are supported by the limited available analysed data which has not appropriately undergone the rigorous and stringent measures of integrity and validity checking.

Research has been definitely impacted globally by the current pandemic. COVID-19 appropriate behaviour will be a new norm when carrying out even non-COVID-19 research activity. The consent implications need to be redefined in the aftermath of COVID-19 as the post-COVID-19 patient population will increase.

Few more issues related to academic research warrant special attention. The pre-planned strategies of research may have to be modified or have to be updated if the COVID-19 surge keeps on striking or the sporadic cases keep on coming especially in the operative arena. Research activities may hit a roadblock if any patient develops COVID-19 peri-operatively, during the hospital stay or immediately after discharge from the hospital. Economic and financial issues will further complicate the research activities if the expenses of patients contracting COVID-19 during study period have to be borne by the researchers. New clauses have to be added in the research ethics highlighting about the clarity of financial support to the patients accidentally developing COVID-19 during research. Incidences of violence against medical staff are increasing by each passing day in our nation. The incidences are not abating in spite of stringent measures and policies adopted time and again by the government. Patients developing COVID-19 during research may further add fuel to the fire and may possibly lead to enhanced incidences of such violent episodes. Therefore, medico-legal, socio-behavioural and ethical issues will have to be re-addressed while carrying out non-COVID-19 research activities.

The multiple surges in the COVID-19 have reduced the thinking spectrum for the non-COVID-19 research. Presently, emphasis is more and more on vaccination and in the coming days superfluous data will dilute all other important non-COVID-19 research initiations. Clinical research priorities due to this adamant pandemic have already been rendered to miniscule importance. Many important trials throughout the world had to be stopped as a result of the rising challenges from this pandemic. Plans to execute newer non-COVID-19 studies have been put on hold for the time being. Safety of the patients and health care workers, the risky arena of trial location, difficulties in keeping the validity, quality and data integrity of the trial intact, the interference in allocation of financial and manpower resources as against the acute needs for COVID-19 patients, minimal potential benefits of such trials and many more factors are going to be strong determinants of carrying out non-COVID-19 trials.<sup>[12,13]</sup>

The COVID-19 saga has no doubt opened up opportunities for us in COVID-19-related research. The various articles published on COVID-19 in the 2020 and 2021 issues of the IJA are a testimony to this.<sup>[14,15]</sup> But, will COVID-19 stay on? Will this COVID-19 research be useful in the later years, when

COVID-19 may be reduced to affecting just a handful of cases? The other fatal diseases have not declined but are just being eclipsed by the attention COVID-19 has been garnering for the last 18–20 months. These diseases will continue to afflict humanity for a longer time. Are we justified in withholding research on these common conditions? Trials for such diseases should be encouraged even in the present clinical situation also after updation of ethical norms in the light of the current scenario. Sample size determination for the non-COVID-19 research also needs few more parameters to be taken into account so as to determine the end-points. In post-COVID-19 population, statistically speaking, there may be many more clinical challenges and modifications may be required from time to time in achieving the primary objective. In such circumstances, there is a strong likelihood of trials getting underpowered as we will be facing the aftermath of COVID-19 for a long time to come.

As we are heading towards partial unlocking of the curbs and other activities, hybrid academic and clinical meetings are being planned. Similarly, in many circumstances, we may be heading towards hybrid clinical trials especially with popularisation of telemedicine so as to keep the enthusiasm of research activities intact. There is a strong need for curbing the duplicative studies during these times as we have limited resources and manpower and wasting them for such redundant studies is not justified at all in the COVID-19 era. Another issue of concern is the changing psyche of the patient which can produce huge transformation in the COVID-19 era. As such, this subset of population will not be able to participate in the research project wholeheartedly which may result in collection of spurious data and higher chances of errors in the study results. Doctor-patient relationship warrants modifications during current times considering these social and clinical circumstances.<sup>[16]</sup>

Single centre studies will be more difficult in the aftermath of COVID-19 and it will be difficult to maintain and follow common data standards in the post-COVID-19 population. Pilot studies and predefined trials will definitely help in guiding us for future research before we undertake other major studies.

Conduction of non-COVID-19 research while the patients are dying of COVID-19 can have a negative and distressing psychosocial impact on researchers' minds due to the thought of betraying mankind and diverting the essential resources to non-essential

projects. This can be aptly applied to the socio-clinical situation in our nation as we have witnessed of late the shortage of intensive care beds, deficiency of oxygen, hoarding and black marketing of essential drugs and many other such things. During this current globally prevalent situation, it has become clearly visible to the world that anaesthesiologists and intensivists are not only capable of clinically managing this pandemic but they have shown their potential and capabilities on multiple fronts also which include but are not limited to maintaining the social, organisational, administrative fronts, becoming innovators and upholding the academic front as well.<sup>[17,18]</sup> There has been generation of so much data in our nation, but still our frontliners have been focussing on saving lives rather than primarily going for publishing their COVID-19 research. The number of cases we had in our nation warrants the highest number of publications from our country but it is not happening like that as we are more focussed on taking care of the patients, optimal utilisation of resources and manpower and keeping the research academics as second priority.

COVID-19 is undoubtedly shaping our research destiny. It is highly essential that at this stage of the pandemic, we should not let our guards down and be prepared for the unexpected by becoming more proactive rather than reactive to the situation. In the midst of COVID-19 uncertainty, life has to go on. Most of us have buried ourselves in COVID-19 work. But it is time that we should get awake and look beyond. Diving into a research path is important—be it COVID-19 or non-COVID-19. The publication of both COVID-19 and non-COVID-19 articles in the current issue of IJA is an apt example which potentially guides us how to move forward on the academic research front during these times.<sup>[19-29]</sup> Currently, the non-COVID-19 research paths appear uncertain, but we need to explore them and be brave and wise enough to accept the challenges of choosing these paths. The Bohemian writer Franz Kafka once said 'Paths are made by walking'. Whichever the chosen research path and whatever the topic of research, one has to follow research ethics, be principled and committed to conducting true research of integrity. The quality of research should never take a toll; in fact, COVID-19 can possibly enhance the flavour of research and make it more interesting. However, the continuity of non-COVID-19 research academics warrants a good collaboration with other specialities, risk mitigation, ensuring safety of patients and frontliners, better preparedness, optimal preservation and utilisation of resources, adopting

hybrid research plans and be ready to alter and modify academic strategies according to the clinical situation in our nation. The research journey has to continue and it is certain that the frontliners will be the torch bearers again on the academic front also.

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