

Commentary Paper: Facing COVID-19, Jumping From In-Person Training To Virtual Learning: A Review on Educational and Clinical Activities in a Neurology Department



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ABSTRACT

The new coronavirus virus 2019 (COVID-19) has affected many routine medical activities, including medical education and clinical activities. The social isolation has led to highlighting virtual learning and telemedicine. We present a report of our adoptive procedures taken during the outbreak of COVID-19 in our tertiary healthcare center and compare the current educational and clinical issues with these issues one month before the outbreak. Virtual learning is a useful replacement in this critical situation.

Highlights

- COVID-19 has changed the world and the educational and clinical activities.
- Virtual learning was increasingly substitute in-person learning during COVID outbreak.
- Telemedicine is a suitable approach in providing effective and safe healthcare.
- Any strategy of educational and clinical activities should be flexible during crisis.

Plain Language Summary

The new Coronavirus Virus 2019 (COVID-19) has changed the world recently. The medical education and clinical practice were affected, as well. The contributing factors were providing social isolation to reduce the virus spreading,

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limitation in protective equipment, and transferring available sources to facing COVID-19. Therefore, having flexible strategies may help us to manage the critical situation. Neurology Department of Firoozgar hospital, affiliated to Iran University of Medical Science (IUMS), has made some changes in routine clinical and educational activities since the emergence of outbreak. Although the number of active staff and residents were reduced significantly, the in-person educational and clinical activities were converted to virtual learning and tele-medicine, respectively. The virtual space helped up to join with our colleagues in other centers and share our educational activities. The number of educational classes was increased fifteenth times at the second month of the outbreak, compared to the first month. Even more, this amount was doubled in respect to one month before outbreak. Tele-medicine including online follow-up of patients using telephone or internet was applied, especially for those patients underwent immunosuppressive medications. A multidisciplinary online team helped us for quick management of patients and reduce the time of hospitalization. Finally, changing the strategy from in-person practice to virtual learning and tele-medicine is a practical and useful model which is recommended for other centers at the pandemic crisis.

1. Dear Editor

The new Coronavirus Virus 2019 (COVID-19) has changed the world in many aspects, including medical education in recent months (Farhoudian et al., 2020). As we know, social isolation is the best strategy for preventing the COVID-19 outbreak.

However, the educational staff and medical students have a potential status for spreading the virus, and they must be cautious in the clinical settings (Ferrel & Ryan; Rose, 2020). Additional risk factors were shortages in COVID-19 test kits and protective equipment. Also, the number of challenging and educational cases must be reduced by canceling the admission of elective patients, and transferring the available sources for the management of new cases with COVID-19 (Rose, 2020).

After the report of the first cases of COVID-19 in Iran, this issue became clear that our routine educational activity would be affected. Our center, Firoozgar Hospital, affiliated to Iran University of Medical Sciences (IUMS), is a tertiary health center and provides care for both COVID-19 and neurologic diseases. In this regard, we encountered new and challenging clinical, educational, and managerial issues.

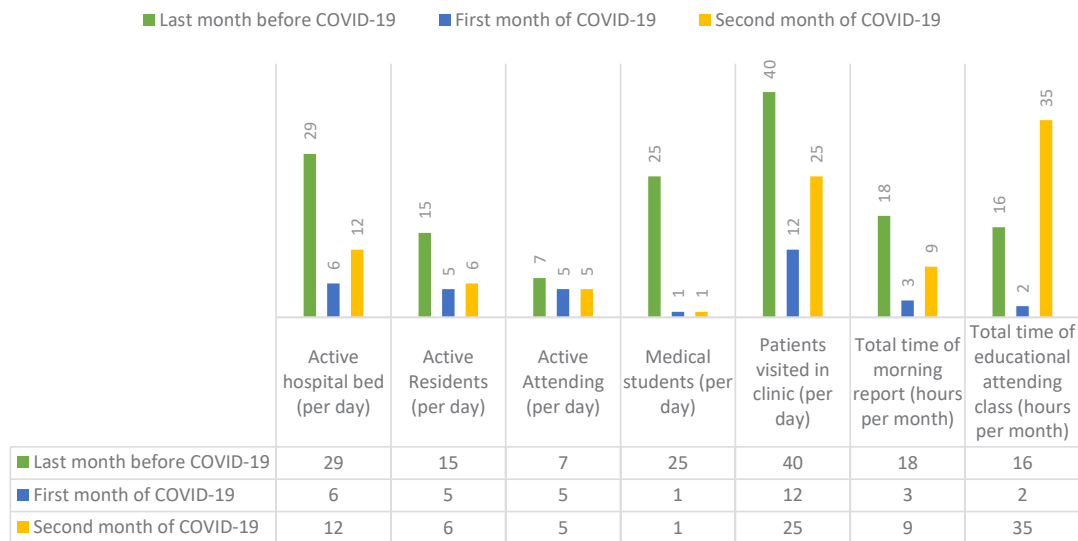
As Alan Lakein once said, "Failing to plan is planning to fail." In such circumstances that involve nearly all people in the world, some unusual situations may occur that we should be prepared for and even anticipate them (Niska & Shimizu, 2011). On the other hand, as the crisis is assumed to last a long time, saving human resources is essential for the system to work properly during an unusual and unpredictable situation (Wang, Hutchins, & Garavan, 2009).

In the Neurology Department of Firoozgar Hospital, we made some decisions and ran a series of actions that help us continue our basic educational and clinical activities along with participating in COVID-19 management. This paper is the report of these strategies, decisions, and experiences during the COVID-19 pandemic crisis. To the best of our knowledge, there is no comprehensive and quantitative report regarding the changes in educational and clinical activities during this crisis in the neurology departments of Iran. Therefore, we believe that it is useful to report the procedures taken in our department which may be a model for other centers.

2. Educational Programs

After the emergence of the crisis, the major advice of the World Health Organization (WHO), Iranian Ministry of Healthcare, and National Committee of Corona was to conduct social isolation in order to reduce the chance of virus transmission. Therefore, to decrease in-hospital traffic, all educational programs and activities of the employees who were not directly involved in COVID-19 were suspended in Firoozgar Hospital. Besides, to minimize the exposure of medical staff to the disease, we decreased the attendance of the medical students and educational staff to the lowest possible number.

The Neurology Department was also involved and it was one of the first wards converted to a Corona-unit, for the care and isolation of COVID-19 patients. Therefore, the number of active attending and residents was reduced to the minimum and the educational grand rounds were transformed into working round. To minimize the effect of new situations on the efficacy of education, virtual learning was used. Our daily morning reports and educational classes were switched to webinars and virtual classrooms, using internet-based applications. The



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Figure 1. Clinical and educational activities in the Neurology Department of Firoozgar Hospital, before and after the crisis of COVID-19

virtual environment helped us to join the other neurology centers, including the Neurology Department of Rasoul-Akram Hospital, affiliated to IUMS.

Within the first two months of the COVID-19 outbreak, we ran 10 sessions (approximately 12 hours) of virtual morning reports and 36 sessions (approximately 37 hours) of joint virtual educational classes. Despite the reduction of the clinical activities, including the number of hospital beds, medical staff, and visited patients, the number of educational classes increased in the second month of the outbreak (Figure 1).

3. Clinical Activities

At first, all elective and non-emergent activities were postponed to reduce the workload and crowdedness in the hospital according to current number guidelines (Gupta et al., 2020). The number of the active hospital beds was significantly decreased, too (Figure 1). Before the emergence of the COVID-19 pandemic, the Neurology Department of Firoozgar Hospital had 22 active attending and residents in 10 active clinics, including Neurology Ward, Neurovascular Intensive Care Unit (ICU), General Neurology Clinic, Neurosonology Unit, Electroencephalography Unit, two electromyography clinics, and three subspecialty clinics. After the outbreak, the clinics were merged and the number of medical staff was reduced (Figure 1).

To decrease the visit of patients and subsequent exposures, we ran an online follow-up protocol using telephone or internet, especially for those patients who were

under immunosuppressive medications. Also, to shorten the time of hospitalization for patients with emergency conditions, a multidisciplinary online team, consisting of neurologists, neurosurgeons, and radiologists, was established and decisions were made in the shortest time.

4. Conclusion

Adaptation, innovation, and finding new flexible strategies are crucial elements in any crisis (Ferrel & Ryan, 2020). It should be kept in mind that in the current situation with unknown future and timeline (Yang et al., 2020), medical education should be continued and tele-education and virtual learning may be applied instead of in-person trainings. Besides, telemedicine seems to be a suitable and useful approach in providing effective, safe, and accessible healthcare. Finally, we emphasize that any plan and strategy should be flexible and educational departments should change their approaches based on the present situations. We received some positive feedbacks from neurology residents and even other departments in the hospital about the quality of educational activities. This positive feedback encouraged us to continue tele-education programs even after the pandemic.

Ethical Considerations

Compliance with ethical guidelines

All ethical concerns were conducted based on Principles of Publishing Ethics and Research Ethics.

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Authors' contributions

Conceptualization, data curation, methodology, writing first draft of the manuscript: Marjan Zeinali; Conceptualization, data curation and validation, methodology, writing final version of manuscript: Mostafa Almasi-Doghace; Conceptualization, data curation, methodology: Bahram Haghi-Ashtiani.

Conflict of interest

Authors declare no conflict of interest or funding to disclose.

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