



Editorial

Reinvigorating medical student mentorships in neurosurgery during the pandemic: Lessons learned from Iraq

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INTRODUCTION

The sudden onset of the COVID-19 pandemic affected both directly and indirectly the study and work conditions. The government has taken several steps to contain the spread of the virus; a nationwide curfew was imposed on March 17, 2020, and a complete lockdown was ordered.^[1] Furthermore, it caused an unprecedented interruption in medical education for students across the country. It forced students to leave their clinical rotations, endangering their opportunities to gain enough exposure to medical specialties, complete graduation necessities timely, and earn the skills and knowledge required for residency. Naturally, due to the new pandemic era, the traditional live mentorship process was impractical in that event. A new modified mentorship paradigm was established that included online lectures focused on the basic required knowledge for neurosurgery, and clerkship lectures comprised activities of students, where 558 medical students were involved. This paper discusses the Baghdad neurosurgery mentorship during the COVID-19 pandemic with notable comparison to the mentorship preceding the pandemic epoch.

THE MENTORSHIP BEFORE COVID-19

Modern neurosurgery in Iraq originated in the 1970s. It showed a relatively slow developmental pace, evident in the few neurosurgeons per population. Moreover, medical graduates have little interest in pursuing a career in neurosurgery in Iraq due to the high demanding job and few incentives in return.^[2] At most medical schools, total exposure to neurosurgery is weighted toward the senior years (5th and 6th year), and it is often the duty of the students to do extra exploration of the field that could be interesting for them, especially in the early 1st years in medical school.^[4] Therefore, HOZ Neurosurgery Laboratory was launched to ease that duty and make exploring neurosurgery more available and easily reached. Furthermore, it increases the level of interest of medical students in neurosurgery by creating a series of mentorships. For the past 6 years, seven mentorships hosted in the HOZ NeuroSurgery LAB in Neurosurgical Teaching Hospital, Baghdad, were done with a total of 532 participants in different years in medical schools to provide them the early exposure to neurosurgery. Students were selected to attend these courses

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and are permitted to participate in an observership period during which they attend a series of live lectures, seminars, and hands-on basic skills courses. In addition, shadowing the neurosurgery residents in the emergency department, operating room, and intensive care units was one of the main objectives for medical students involving the clinical side of the mentorship.^[3]

TRANSITIONING TO ONLINE TEACHING

The new mentorship started on May 15, 2021. It included a 1-month online course focused on the basic required knowledge for neurosurgery. Specifically, it contained neurosurgical anatomy, neuroimaging, principles of neurological surgery, and discussion on neurosurgical operative videos. The students apply for this course through a preparatory motivational online form. This form includes several questions aimed at evaluating students' aims and ambitions for this particular mentorship. Then, the form is corrected and reviewed by the mentor, who eventually selects the proper students for this mentorship. In addition, to using the Zoom application for our virtual meetings for discussions, the Telegram application was also used to receive written feedback and further discussions. These two applications gave a positive opportunity to increase students' attendance due to ease of access. Despite this challenging period, the number of students in this virtual mentorship exceeded the number of students in all the previous seven mentorships combined, which depended on the live meetings.

NEW OPPORTUNITIES IN THE TIME OF ZOOM MEETINGS

In this course, the mentees had various opportunities, including doing online public presentations by students about a research project, they have conducted and surgeries they have attended. It was, furthermore, connecting online with international figures, and discussing various topics in neurosurgery career abroad. Likewise, such collaborations can open the doors for new opportunities for medical students by being oriented to the current neurosurgery trends.

MAINTAINING CLINICAL EXPOSURE

The practical part of the mentorship was started with clerkship lectures during a 5-month course. In each virtual meeting, quizzes about neuroanatomy, neuroimaging, and differential diagnosis were included in the study. The students who answer correctly and confidently have a better opportunity to attend the operations. Two operative days per week, where they can attend neurovascular surgeries, tumors, and some diagnostic and therapeutic cerebral catheterizations. Each operation day, four students will

be allowed to attend the operation. Moreover, due to the exceptional period, the priority was to keep students as safe as possible throughout the operation days. This involved providing personal protective equipment that is mandatorily worn besides requiring an official paper of complete vaccination for each participant. After each surgery, the students had to stay and check on the patient's recovery. Two students simultaneously attend the emergency department and three in the neurosurgical intensive care units to engage a maximum number of students simultaneously at different aspects of neurosurgery. At the end of each day, feedback about the surgery was collected, the experience, the lessons, and even the feelings would be reported by the students who attended. These summaries were beneficial, making other students in mentorship more oriented about the etiquette in the operating room, the operation steps, and what they should and should not. Furthermore, every four students who attended an operation had to write a research paper related to the operation that they attended after a series of clerkship aimed at educating medical students about research.

THE END PRODUCTS OF MENTORSHIP

It was expected that COVID-19 would negatively impact the HOZ neurosurgical mentorship. However, amazement was found that the number of participants in this mentorship alone was more significant than the number of participants in all mentorships that preceded the pandemic. A combined 558 participants have been included in the online course, and only about 223 participants of them attended the operations, because those who did not attend were either from distant places in Iraq or only wanted a clearer view of neurosurgery and its depth. The success of this mode of teaching during the pandemic is due to several reasons, including (1) using of social media to promote virtual learning to a broader audience and to offer networking opportunities, (2) the developing of virtual clerkships with increased attendance due to ease of access through the use of Zoom to increase medical students' clinical exposure, and (3) gaining the ability to give feedback from mentor and peers alike.^[5] Therefore, the effectiveness of mentorship is doubled, and the students' response was positive. Many of them attended neurosurgical operations, made impressive online presentations, and participated in research papers that were a distant dream to achieve. They met new peers, and the right neurosurgeon attitudes were their extensive gain.

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