SHORT REPORT

E-learning in postgraduate urology training: A Covid-19 pandemic experience

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Abstract

Since the declaration of the Covid-19 pandemic in March 2020, several teaching institutions started the process of adjusting to the new challenge. Medical education could not be imparted the way it used to be and some new methods had to be taken to adapt to the pandemic.

At our institute, an online e-teaching approach was adopted to ensure the continuation of post-graduate medical training. Each week two lectures were recorded and uploaded on the YouTube Channel and shared with the students. This was followed by an MCQ based test using Google forms. Ten lectures were delivered in five weeks to 55 participants.

The majority of residents agreed that this activity increased their knowledge of the subject and opted to continue it in future.

With the help of short online lectures (< 30 minutes) and online tests (5 MCQs), the learning experience of residents can be enhanced. In future, more online resources can be used to incorporate this method of teaching.

Keywords: Urology, Teaching, Education, Fellowship, Survey.

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Introduction

Covid-19 has changed the way we live in the modern world. Since the declaration of a pandemic on March 11, 2020,[1] several teaching institutions had begun the process of adjusting to the measures recommended by WHO, such as maintaining safe social distance, wearing a mask, avoiding gatherings, hand sanitation and isolation of those with symptoms. Medical education could not be imparted the way it used to be and some new measures had to be taken to adapt to the pandemic.

In Pakistan, the first case of Covid-19 was reported on February 26, 2020, and then the number of patients sharply increased and crossed 200,000 cases by the end of June 2020.[2] Along with catering to the needs of the population, the Sindh Institute of Urology and Transplantation attempted to balance patient services with the teaching and training of its doctors. The department of Urology has 55 postgraduate residents at different levels of training pursuing fellowship from the College of Physicians and Surgeons of Pakistan (CPSP) and Master of Surgery (MS) in urology from Sindh Institute of Medical Sciences (SIMS). The Institute also has two satellite centres, one within Karachi, i.e. (Mehrunnisa Medical Centre) which is located about 20km away from the primary centre, while the other is in Sukkur (Chablani Medical Centre) located 500km away. Before the pandemic, there were at least two educational sessions every week covering relevant topics in Urology. As the situation worsened it was realised that the gathering of residents and faculty for the sake of lectures could potentially spread the infection among healthcare providers. All elective patient care services such as outpatient clinics and surgeries were stopped and the centre was converted into a Covid-19 infection care facility. A new intensive care unit, high dependency unit, and isolation ward were established. The residents were divided into four groups along with other healthcare personnel. Each team provided services on a given day, while others were asked to stay at home. This helped curtail the spread of infection among the healthcare team and ensured that a reserve force was available at all times. Under these circumstances, it was not possible to continue academic meetings and training of residents across the whole institute; therefore, all academic activities were stopped. Soon a prolonged and uncertain future of the pandemic was realised and the faculty of urology decided to re-engage residents in the process of teaching and learning. This paper describes an e-learning method for teaching the urology residents and the outcomes of this process which was adopted during these testing times.

Methods

Each week two lectures were delivered on selected topics of urology from March to May 2020. Besides the presenter, the lectures were attended by two to three faculty members in the lecture hall that had a capacity of 250 people, ensuring social distancing. The rest of the faculty and residents did not attend these sessions because they were either at home or busy working in Covid care units. The whole process of lecture and discussion was recorded on audio and video. This was later uploaded on the YouTube Channel of the Institute[3] and the link shared with the residents and the rest of the faculty via a messaging

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app (WhatsApp). After 24 hours of uploading the content, an MCQ based test through Google forms was sent to each resident questioning the material given in the lecture. Response to these questions was analysed and assumed as valid attendance to the whole lecture. (Flowchart). Ten lectures were delivered in five weeks to 55 participants. Data was collected with consent using Google forms and YouTube that included response rate, mean score, number of online views and duration of lectures. Apart from this, separate feedback was collected from all residents and their views on the activity were recorded. An ethical committee approval was taken before data collection.

Results

A total of 10 lectures were delivered in five weeks. The duration of the lecture, online views, and response rate are given in Table-1. The mean time of the lecture videos was 33.1±6.4 minutes and the overall response of the MCQ quiz was 473 out of 550 (86%) (Table-1).

After the completion of 10 lectures, feedback on the whole activity was requested from all residents; they were asked to record their experience and suggestions. Of the 55 participants, 44 responded to feedback requests (80%). (Table-2).

The residents were asked if they would like to continue the academic sessions in the future and 20 (45.2%) agreed to continue the same practice, i.e. online lectures followed by an online test, while 13 (29.5%) wanted lectures in lecture halls followed by an online test. This suggests acceptance of online testing as a method of engaging in learning.

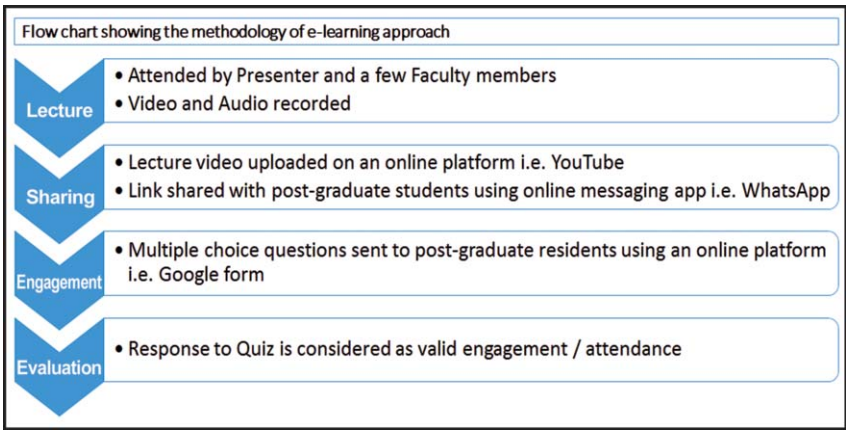
Twenty-two (50.0%) residents watched the lecture videos at night and 18 (40.9%) said they did so in the evening. This suggests that the latter part of the day was a feasible time to engage in academics after completing hospital working hours. Personal cell phones were used by most of the residents, i.e. 41 (93.2) %, while only a few used other

Table-1: Online lectures and variables (duration, online views and response rate).

S No	Topic for Discussion	Duration (minutes)	Online views (YouTube)	Response rate (%)
1	Leukocytes in the Urine. Bacteria in the Urine	37	178	47 (85.4 %)
2	How to Interpret the Results of a Midstream Specimen of Urine Culture Test	30	106	50 (90.9 %)
3	Principles of empirical antibiotic therapy in Urological infections	40	139	55 (100 %)
4	Urological infections in immunocompromised patients.	29	159	51 (92.7 %)
5	Urolithiasis and infection in Urology	29	131	42 (76.3 %)
6	Central venous catheters. How to avoid it?	20	90	55 (96.3 %)
7	The diagnosis and management of a patient with acute pyelonephritis.	22	135	55 (96.3 %)
8	Gonococcal infections	26	68	36 (65.4 %)
9	Acute prostatitis, Evaluation, and management	34	102	49 (89.0 %)
10	Management of Chronic Prostatitis (CP)	64	80	37 (67.2 %)

Table-2: Details of responses to feedback (n=44).

	Questions	Responses				
1	At what time do you usually see online lectures	Morning	Afternoon	Evening	Night	
		2 (4.5%)	2 (4.5%)	18 (40.9%)	22 (50.0%)	
2	On which appliance you usually watched the online lectures	Cell Phone	Personal laptop	Personal desktop	Hospital desktop	Others
		41 (93.1%)	2 (4.5%)	0	1 (2.2%)	0
3	How you prefer to watch online lectures	Alone	With colleagues			
		41 (93.1%)	3 (6.8%)			
4	According to you, what should be the optimum time of each lecture	< 20 minutes	20-30 minutes	31-40 minutes	>40 minutes	
		8 (18.1%)	20 (45.4%)	15 (34.0%)	1 (2.2%)	
5	How many lectures should be done each week?	One	Two	Three	Four	Five
		14 (31.8%)	27 (61.3%)	3 (6.8%)		
6	The content helped increase my knowledge on the subject	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
		7 (15.9%)	36 (81.8%)	1 (2.2%)	0	0
7	Did you experience fatigue because lecture time was too long?	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		5 (11.3%)	14 (31.8%)	11 (25%)	13 (29.5%)	1 (2.2%)
8	How often you wanted to ask questions at the end of the online lecture?	Always	Often	Sometimes	Occasionally	Never
		2 (4.5%)	7 (15.9%)	21 (47.7%)	10 (22.7%)	4 (9.0%)
9	How often you contacted presenter/faculty to ask questions after watching the lecture?	Always	Often	Sometimes	Occasionally	Never
		0	0	6 (13.6%)	13 (29.5%)	25 (56.8)



sources such as a hospital library. Hence, the technical requirement for e-learning activity was available and they were able to use it effectively.

Regarding the number and duration of lectures each week, 41 (93.2%) suggested that two lectures were enough for active learning while avoiding fatigue, and 28 (63.3%) considered less than 30 minutes to be an optimal time for each lecture.

About the content of the lectures, 41 (93.2%) participants agreed that the content achieved learning objectives, while 43 (97.6%) agreed that it improved their knowledge on the subject and 39 (88.6%) respondents concurred that it was relevant.

Fatigue was reported by 19 (43.1%) residents in viewing longer lectures. The mean duration of all the lectures was 33±6.4 minutes, with a range of 22 to 64 minutes.

One of the drawbacks of this method of teaching was presumed to be lack of opportunity for residents to ask direct questions from the faculty and presenter. When asked if they had questions at the end of each lecture that they wanted to ask, 40 (91%) respondents said 'yes'. But when asked if they contacted the primary presenter or any faculty member to resolve the queries, only 18 (40.5%) responded positively. This suggests that residents were unlikely to ask questions if they were not given the opportunity at the time of the lecture.

The process of distant learning and online testing was rather unsupervised. We discovered two different approaches taken by the students to solve the MCQs. The first was to read the questions and search content from the literature before marking the final answer. The second method was to solve the questions based on the existing knowledge and then search the literature for incorrect answers. Only 13 (29.5%) residents reported using the first approach and the first-year residents were more likely to use it as compared to the senior residents (45% vs 36%). Here, it is worth noting that our primary aim was to stimulate and engage residents in learning instead of assigning grades from best to worst. Apart from this, the nature of the quiz, i.e. MCQs, ensures that no direct answers are available in any book or learning material. This means that even if a resident tries to cheat, i.e. search answer from a book, he will have to read and understand adequate content on the subject to mark the correct answer. Therefore, the above approach of searching answers from literature cannot be entirely considered cheating, rather it helps encourage a focused search for specific information.

Conclusion

The process of e-teaching is feasible and useful for the post-graduate education of trainee doctors. With the help of short online lectures and tests, the learning experience of residents may be enhanced.

Recommendations: Based on our experience we recommend the following:

- E-learning activity should be incorporated in postgraduate training programmes to engage the residents in the process of learning
- There is a need for policymaking to address other aspects of residents' training such as surgical skills in the era of Covid-19

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