Original Research Article

DOI: https://dx.doi.org/10.18203/issn.2454-5929.ijohns20220467

Impact of COVID-19 pandemic first wave on the functioning of department of otorhinolaryngology at a tertiary care teaching hospital: a retrospective study

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Received: 21 December 2021 **Revised:** 07 February 2022 **Accepted:** 10 February 2022

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ABSTRACT

Background: COVID-19 (First wave) pandemic cause significant disruptions in social, economic even medical fields in our country. So, the aim of this study to find impact of COVID-19 pandemic (First wave) in functioning of department of otorhinolaryngology at a tertiary care hospital.

Methods: Statistics of out-patients and In-patients attending otorhinolaryngology department during pre COVID period (April 1 2019-March 31 2020) and COVID (First wave) period (April 1 2020-March 31 2021) was collected from MRD, OT records and such other departmental sources. Then statistics of inpatients were collected from OT and IP registers and academic activities were collected from academic session

Results: There is statistically high significant difference out-patients and in-patients attending ORL department during pre-COVID and COVID period. There is statistically high significant difference in regular and emergency ORL surgeries, theory classes and clinical postings conducted for under graduates, case Presentations and journal clubs conducted for post graduate residents during pre-COVID and COVID period.

Conclusions: There was a marked reduction in number of out-patients, in-patients, and surgical procedures done. In CRHS training, they missed the opportunity as primary care doctor at the department of ORL which would have had long lasting experience dealing with a patient of ORL diseases. Due to non-departmental COVID duties of postgraduates their speciality surgical training period was cut short, one third of their course period was spend in COVID patient care. Under graduates' academic activities also were affected.

Keywords: COVID-19, UG academics, PG academics

INTRODUCTION

Pandemics-defined as large-scale outbreaks of infectious disease that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption. Spanish flu pandemic in the first decades of the twentieth century was the first true global pandemic and the first one that occurred in the setting of modern medicine, with specialities such as infectious diseases and epidemiology

studying the nature of illness and the course of pandemic as it unfolded.² The SARS CoV-2 is a novel member of corona virus family. Corona virus are enveloped positive sense single strand RNA viruses (genome size 36-42 kb, diameter 60-140 nm) having surface projections resembling a crown. The disease was announced a public health emergency of international concern on January 30, 2020. On February 11, 2020, the WHO declared COVID-19 as a new name for the disease; while the international virus classification commission called the novel

coronavirus as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).3 The world health organization (WHO) confirmed on 12 January 2020 that a novel coronavirus was the cause of respiratory illness in Wuhan city, China. India reported its first case of COVID-19 on 30 January.4 World health organization (WHO) declared the novel coronavirus outbreak (COVID-19) as a pandemic on 11th March 2020, calling for immediate action to be taken on by all countries in terms of stepping up treatment, detection, and reduction of transmission. As of 26th April 2020, a total of 2.96 million confirmed cases with over 200 thousand deaths reported in 185 countries, government of India initiated various non-pharmaceutical interventions which include social distancing measures like lockdown. The nationwide lockdown was enforced in India on 24th March 2020 resulting in restrictions on unnecessary travel, closure of schools, colleges, and the prohibition of mass gathering.⁵ In the ENT field, clinical examination and invasive procedures on the respiratory tract and on airway-connected cavities (paranasal sinuses, middle ear) expose people to direct transmission of SARS-CoV-2 by inhalation of contaminated droplets or ocular projection, or to indirect transmission by contact with contaminated hands, surfaces or objects. Medical and surgical procedures are therefore considered to put practitioners and nursing staff at high risk when they come into contact with patients either confirmed or suspected to have COVID-19.6

So, the objective of this study is to find the impact of the COVID-19 pandemic (First wave) on the functioning of department of otorhinolaryngology (ORL) at a tertiary care teaching hospital. This systematic study helps in planning strategies for the management of future epidemics without affecting the intended functioning of department of at a tertiary care teaching hospital.

METHODS

The entire study period (April 1 2019-March 31 2021) is divided into pre COVID period (April 1 2019-March 31 2020) and COVID period (April 1 2020-March 31 2021). Statistics of out-patients and in-patients attending otorhinolaryngology department during this period was collected from MRD, OT records and such other departmental sources. Then statistics of in-patients those who underwent emergency procedures and elective procedures were collected from OT and IP registers. Statistics of academic activities during this period were collected from academic session.

Study design

The study design was of retrospective study.

Study place

The study conducted at VIMS, Ballari, Karnataka.

Study period

The study carried out from April 1 2019-March 31 2021

Ethical approval

Ethical approval was given by the institutional research committee VIMS dated on 02/2021.

Inclusion criteria

All patients and academic activities among UG's and PG's in the department of otorhinolaryngology from April 1, 2019-March 31, 2020 in VIMS Ballari, Karnataka.

No exclusion criteria.

Statistical analysis

Simple statistical methods like chi square tests, p value, averages, frequencies, were used to arrive results. A p value <0.05 will be considered as significant.

Sample size

Since it is a retrospective data analysis, sample size is not applicable to this study.

Source of data

The study includes out-patients, in-patient attending the department of otorhinolaryngology VIMS, Ballari, Karnataka State, India.

Academic activities among UG's and PG's and any other activities associated with department of otorhinolaryngology like issue of disability certificate, attending health camps etc in department of otorhinolaryngology VIMS, Ballari, Karnataka State, India.

RESULTS

According to MRD statistics, 20,173 patients attended ORL opd during pre-COVID period (April 1, 2019-March 31, 2020). It is reduced to 10,737 (51.84%) patients who had attended ORL opd during COVID period (April 1, 2020-March 31, 2021). There is statistically high significant difference in patients attending OPD during pre-COVID and COVID period (p<0.001).

According to MRD statistics, 793 patients admitted under ORL department during pre-COVID period and it is reduced to 304 (38.34%) patients admitted under ORL department in COVID period.

There is statistically high significant difference in IP patients admitted under ORL department during pre-COVID and COVID period.

According to regular OT statistics, 214 ear surgeries, 77 nose surgeries, 169 throat surgeries were conducted in pre-COVID period. During COVID period it is reduced to 64 ear surgeries (29.91%), 23 nose surgeries (29.87%), and 47 throat surgeries (27.81%). So, there is statistically

high significant difference in regular ORL surgeries done during pre-COVID and COVID period.

Table 1: Out patients and inpatients.

Variables	Pre-COVID	COVID	P value
Out patient	20,173	10,737	< 0.001
In patient	793	304	< 0.001

Table 2: OT statistics.

Variables	Regular OT			Emergency OT	Emergency OT		
variables	Pre-COVID	COVID	P value	Pre-COVID	COVID	P value	
Ear	214	64	< 0.001	0	6	< 0.01	
Nose	77	23	< 0.001	1	17	< 0.01	
Throat	169	47	< 0.001	80	72	0.654	

In case emergency OT's, 1 nose surgery, 80 throat surgeries were done in pre-covid period. No emergency ear surgery was done in pre-COVID period. During COVID period, 6 ear surgeries, 17 nose surgeries and 72 throat surgeries were done. There is significant difference in emergency ear and nose surgeries done in pre-COVID and COVID period. But there is no statistical difference in emergency throat surgeries done in pre-COVID and COVID period.

Table 3: Disability certificates and health camps.

Variables	Pre-COVID	COVID	P value
Disability certificates	185	115	0.196
Health camps	6	1	0.08

During pre-COVID period, 185 disability certificates were issued and in COVID period, 115 disability certificates were issued. Hence there is no significant difference in disability certificates issued in pre-COVID and COVID period.

During pre-COVID, period, 6 health camps were conducted whereas in COVID period, only 1 health camp is conducted. There is no significant difference in health camps conducted during pre-COVID and COVID period.

Table 4: UG teaching activities.

Variables	Pre-COVID	COVID	P value
Online classes	0	40	< 0.01
Offline classes	57	19	< 0.009
Tutorials	12	0	< 0.02
Pedagogy	32	19	0.317
Theory exams	2	1	0.557
Practical exams	2	1	0.557

During pre-COVID period, no online theory classes were conducted for undergraduates. During COVID period, 40 online theory classes were conducted for UG students. 57 offline theory classes were conducted for UG students in pre-COVID period and it reduced to 19 offline theory classes in COVID period. So, there is statistically difference in offline and online theory classes conducted for UG students in pre-COVID and COVID period. There were 12 tutorials conducted for UG students in pre-COVID period and no tutorials were conducted in COVID period. Hence it is statistically significant.

During pre-COVID period, 32 pedagogies were taken and in COVID period 19 pedagogy were taken. So, there is no statistical difference in pedagogy taken during pre-COVID and COVID period.

There were 2 theory exams and 2 practical exams conducted for UG students in pre-COVID period. During COVID period only 1 theory and 1 practical exam is conducted for UG students. There is no significant difference in theory and practical examinations conducted for UG students in pre-COVID and COVID period.

Table 5: PG teaching activities.

Variables	Pre- COVID	COVID	P value
Case presentations	54	29	< 0.001
Journal clubs	58	25	< 0.001
Seminars	33	27	>0.05
Theory exams	1	2	0.557
Practical exams	1	2	0.557

During pre-COVID period, 54 Case presentations were done where as in COVID period it is reduced to only 29 Case presentations. So, there is highly significant difference in number of Case presentations done during pre-COVID and COVID period.

There were 58 journal clubs done during pre-COVID period and 25 journal clubs during COVID period. There is highly significant difference in number of Journal clubs done during pre-COVID and COVID period.

During pre-COVID period, 33 seminars were done and in COVID period 27 Seminars were done. So, there is no significant difference in number of seminars done during pre-COVID and COVID period.

There were 1 theory exams and 1 practical exam conducted for PG's in pre-COVID period. During COVID period 2 theory and 2 practical exams were conducted for PG's. There is no significant difference in theory and practical examination conducted for PG's in pre-COVID and COVID period.

Table 6: Others.

Others	Pre- COVID	COVID	Percent reduction
Workshops	2	1	50 (p=0.557)
Conferences	1	0	100
CME	1	0	100

According to statistics there were 2 Workshops were conducted in pre-COVID period and 1 during COVID period. So, there is 50% reduction in Workshops conducted during pre-COVID and COVID periods and it is not statistically significant. During pre-COVID period 1 conference conducted and during COVID period no Conference conducted, there was only 1 CME conducted in pre-COVID period whereas in COVID period no CME was conducted. So, there was 100% reduction in conferences and CME conducted during pre-COVID and COVID period.

DISCUSSION

COVID-19 is a health emergency. Countries worldwide have implemented strict controls on movement in response to the COVID-19 pandemic. The aim is to cut transmission by reducing close contact. In association with COVID-19 clinical services to the public has been severely disruptive, as redistribution of manpower and resources are required to critically meet the current and anticipated hospital service needs during the outbreak. There has been a reduction in elective clinics and maximize hospital beds numbers available in anticipation of the outbreak. There is also understandably fear from the public in visiting hospitals. Because of these factors, there is a significant reduction in in-patients and outpatients during COVID period compared to pre-COVID period.

In relation to COVID-19 pandemic (First wave), there is cancellation of elective ear, nose and throat surgeries during COVID period. COVID-19 spreads through respiratory route. During surgeries, the operating surgeon

and OT staff are at high risk of acquiring infection by generating aerosols during the procedures. So, there is significantly high difference in regular ORL surgeries done during pre-COVID and COVID period. Emergency surgeries were conducted in COVID period. Emergency ear and nose surgeries were more in COVID period than in pre-COVID period.

Since there is cancellation of regular OT, some ear and nose surgeries which require active intervention were conducted as emergency basis. Thus, there is significant difference in emergency ear and nose surgeries conducted during pre-COVID and COVID period.

The shutdown of academic institutions, alongside the novel challenge imposed on health care systems worldwide, have taken an immense toll on the quantity and quality of medical education. Medical students and junior doctors are thus faced with the oxymoron of not receiving adequate education but being required to potentially serve in the frontlines. In UG academic activities offline theory classes and tutorials were reduced during COVID period. All aspects of medical education have been severely impacted by the pandemic. The first activities to be suspended under the state of emergency in teaching hospitals were medical students' clinical clerkships, observer ships and elective opportunities. Training and lectures were deemed unsafe due to social distancing measures, these traditional training methods have been gradually replaced by live or asynchronous online modalities. The contagious nature of this disaster has precluded students from being active members of clinical teams, as hospitals attempt to minimize nonessential staffing in clinical environments. The shortage of coronavirus tests and personal protective equipment, as well as the suspension of regular clinical care (e.g., outpatient clinics, elective surgeries) has contributed to this difficulty in including medical students. Despite the educational value and diversity of the available online resources, lack of bedside teaching, compromises students' direct involvement with patients, which could have optimised their physical examination skills as well as several non-technical skills.9 The final year medical students, who were doing internship, became frontline warriors in this pandemic period as clinical rotations in different speciality clinics were suspended during COVID times. This reduces their various skills that have to be achieved through training in speciality clinics.

In PG teaching activities there was statistically high difference in case presentations and journal clubs conducted during COVID period compared to pre-COVID period. As far as the postgraduate students are concerned, they have been deployed as a part of COVID workforce and during their COVID duties post graduates acquired COVID-19 infection. All the above factors lead to reduction of academic activities among post graduates.

There was only 1 workshop (50% reduction) and no conference, CME (100% reduction) were conducted

during COVID period. This is due to high risk of transmission of COVID-19 infection through these social gatherings.

The major limitation of this study is, since it is an institutional based study done in a government setup, the inference might not be applicable for boarder consideration. We need multicentric studies to arrive at a reliable conclusion.

CONCLUSION

The COVID-19 (First wave) pandemic was an extraordinary for the medical field. There was a marked reduction in number of patients visiting the out-patient department, number of patients admitted in the ORL ward, and number of surgical procedures done. Most of the elective cases were cancelled in response to the pandemic COVID-19 (first wave). The main intention of medical colleges is to train future generations, but inadequate clinical exposure among undergraduates leads to suboptimal clinical examination skills even their academic curriculum was compromised. In CRHS training, they missed the opportunity as primary care doctor at the department of ORL which would have had long lasting experience in dealing with a patient of ORL diseases. Due to non-departmental COVID duties of postgraduates their speciality surgical training period was cut short, to be precise one third of their course period in COVID patient care. spend Otorhinolaryngology is a multi-system surgical speciality which needs long duration learning curve to acquire acceptable surgical skills, reduction in surgical training will leads to long lasting scar in the training of ORL Post graduation residents. Thus, this study highlighted how COVID pandemic (first wave) affects the functioning of department on otorhinolaryngology at a tertiary care teaching hospital.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

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Cite this article as: Hubballi RK, Tom T. Impact of COVID-19 pandemic first wave on the functioning of department of otorhinolaryngology at a tertiary care teaching hospital-a retrospective study. Int J Otorhinolaryngol Head Neck Surg 2022;8:191-5.