

Comparison of demographic profile of patients visiting ENT in a Tertiary Care Hospital at New Delhi, pre & during COVID pandemic

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Abstract

Background: COVID-19 pandemic, has severely impacted the otolaryngology practice globally. Keeping in mind the ever growing patient clientele, new guidelines were set for the safe ENT practice.

Methodology: A retrospective study was conducted in a non-COVID Tertiary Care Hospital at New Delhi, to understand the change in demographic profile of patients visiting ENT for the specialised care and surgeries during COVID pandemic and compared with the pre-COVID times for the same duration.

Results and Conclusion: The number of patients visiting OPD and surgeries performed were very less as compared to pre-COVID times. The male: female ratio in both the era showed a male predominance in both OPD consultation and surgical intervention. 59% of ENT OPD consultation comprised of emergency and semi-emergency cases in COVID times while it only formed 30% of the total OPD in pre-COVID times. There was relative rise in the patient clientele aged > 40years in ENT OPD during COVID pandemic (56% of total in COVID pandemic as compared to 49% in pre-COVID times). A relatively less surgeries were performed during COVID pandemic which primarily comprised of semi-emergency/ malignancy cases as compared to elective cases in pre-COVID times.

Key Words: COVID-19, Otolaryngology practices, Guidelines, Otolaryngologists

Date of Submission: 01-08-2021

Date of Acceptance: 15-08-2021

I. Background

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is highly infectious with a control reproduction number as high as 6.47 (95% CI, 5.71-7.23). Human to human spread occurs through respiratory secretions, and so health care personnels' managing patients of the aerodigestive tracts are most susceptible to this infection. Otolaryngologists are routinely involved with evaluation of upper aerodigestive tract and procedures involving aerosolized secretions high in viral load as potential source of infection. Because of these risk factors, it is important to ensure safe practices in otolaryngology. [1,2]

Coronavirus disease (COVID-19) pandemic has altered every aspect of health care system. Patients who are COVID-19 negative are also suffering because of COVID-19 positive patients overload, infectivity, unpredictable presentation along with limited number of otolaryngologists. In this scenario it is of utmost importance to ensure safety of health care workers (HCW) and enable treatment to both COVID-19 positive and negative cases.[3] Ministry of Health and family welfare, Government of India had laid guideline for segregation of various hospitals as COVID and non COVID centres. It also laid down practice guideline for safe ENT practices, which came into vogue on 03 Jun 2020. The guideline comprises of comprehensive protocols and standing operating procedures (SOPs) for Ear, Nose & Throat Outpatient Department (ENT OPD), procedures and surgeries as well as for in-hospital nursing care.[4,5] After the implementation of this new guidelines, separate Institutional allocation of areas for COVID-19 positive and COVID-19 negative was initiated. A study was conducted in department of ENT of a non-COVID tertiary care centre to analyse the demographic changes in patients attending to ENT OPDs and undergoing surgeries in the pandemic situation.

II. MATERIAL & METHODS:

A retrospective study was carried out in a non-COVID tertiary care centre. All the patients visiting ENT OPD and undergoing surgeries in the centre were included in the study during the period of 08 Jun 2020 to 08 Aug 2020 and same period for the year 2019.

Aims & Objectives:

1. To assess the change in demographic profile of patients visiting the ENT Outpatient (OPD) during the pre-COVID period and during the COVID pandemic.
2. To assess the change in Demographic profile of patients undergoing the surgeries in ENT during the pre-COVID period and during the COVID pandemic.

New guideline for safe Otolaryngological practices in COVID times as issued by Ministry of health & family welfare, Government of India was strictly followed. For OPD prior tele-consultation was given to patients needing medical advice and were subsequently told to seek appointment for physical examination if they did not find relief to their problems, this was done to identify patients requiring OPD visit. All those visiting OPD were given prior appointment. Screening at OPD entry was done by using Screening performa and thermal screening. Any patient with symptoms suggestive of COVID-19 were seen in a separate fever clinic. Examination of patients were strictly done by taking all preventive measures. Patients and care takers with face screens or face masks were only allowed. Normal OPD examination was done by using level-1 PPE kit and examinations like nasal suctioning, endoscopy, tube change, tracheostomy were done in level II PPE kit. Patient admission was done in step one ward and underwent COVID-19 testing on admission using reverse transcription polymerase chain reaction (RT-PCR). Emergency surgeries were performed with at least one COVID test with a duration of 4-6 hours while semi-emergency surgeries were performed after two COVID tests at an interval of 5 to 7 days. Semi-emergencies and elective surgeries were done only in COVID negative patients and were discharged once were physically stable. Post discharge they were also suggested to follow social distancing. Patients were subjected to at least one COVID-19 testing on OPD basis before undergoing any ENT day care procedures. Data collection included patient particulars like age and sex, cause of consultation, treatment history from OPD record register and OT (Operation theatre) details were collected from OT registers. Infection control measures & level of protection adopted at OPDs, wards & OT were also evaluated. Similar OPD and OT records were taken from 08 June 2019 to 08 August 2019 and were compared with the data for the same period in 2020.

Inclusion criteria-

All patients visiting to OPDs & being operated in ENT OT. All were COVID-19 negative

Exclusion Criteria-

COVID-19 positive patients were excluded. Those taking consultation on phone or by telemedicine were also excluded.

Average of two months OPD and OT data from COVID and pre-COVID times were analysed.

Descriptive analysis was done. Continuous variables were described using mean values. Categorical variables were described as frequency, ratios & percentages. ‘p’ value was calculated to show statistical significance. Statistical analysis was done by using SPSS 20

III. Results:

Data of ENT OPD and OT compiled for a duration of 2 months (08 June to 08 August) in both the Pre-COVID (ie 2019) and COVID period (ie 2020). Total number of patients seen in the OPD in 2019 was 2,290 (average OPD was 75.3 ± 14 per day) while in COVID era for the same period 474 number of patients were seen (averaging to 16 ± 12.4 per day) and showed statistically significant decline in OPD visit in COVID times, however no significant change in the gender ratio (p-Value of 0.25) was seen in both the years (Table 1).

Age group stratification was done in both the periods for comparison to understand the patient load, and it was observed that the age group of 0-20 years formed 35% bulk of OPD load in the Pre-COVID period while the maximum load in COVID time was for 41-60 years (34%), as shown in table 2.

Cause of consultation in OPD has been classified as emergency, semi-emergency/ malignancy and elective cases. Among 474 patients visiting to OPD in 2020, emergency visit was 20% (n=95), semi-emergency 39% (n=185) and elective 41% (n= 194) while in 2019, emergency visit was 6% (n= 137), semi-emergency 24% (n=550) and elective 70% (n=1,603) as shown in table 1. Most emergency visits in 2020 were mainly because of ear associated complaints while in 2019 it was epistaxis as seen in Figure 1.

Total number of cases operated in 2020 were 34 as compared to 110 cases operated in 2019 details are enumerated in Table 3. The male: female ratio had male dominance in both the periods. The major bulk of cases done in COVID times were semi-emergency/ malignancy case accounting for 52% of the load, while in the pre-COVID times were elective case amounting to 59% of total cases.

IV. Discussion:

Otolaryngological practice was overburdened with COVID-19 patients and had adversely affected treatment of non-COVID patients with ENT cause.[1,2] Treatment to all irrespective of their COVID-19 status along with judicious use of resources needed to be ensured. Separate treatment centres for COVID and non-COVID patients was initiated.[3-6] In our study, demographic pattern of OPD was quite different in both the

eras. The total number of patients visiting the OPD was significantly reduced in COVID times. This may have been because of two reasons namely teleconsultation and prior appointment system [3,4,5] however the department of ENT did not have a formal documentation of teleconsultation given and hence is the limitation of the present study. It can be fairly assumed that teleconsultation and prior appointment reduced the OPD visit and was also helpful in minimising exposure and cross infection. Most of the OPD load in 2019 was due to ear associated problems followed by allergic rhinitis and tonsillitis in younger age group. This is in accordance with study conducted by Mina et al [7]. Das et al [9] and Saroha et al [8] reported throat related problems to be maximum followed by ear problems and nose related problems. Pollution, noise, traffic related problems are the major cause of ear associated problems and allergic problems to form the major outpatient load. In 2020 most of them were advised through teleconsultation and resulted into decreased OPD load. Due to prior appointment only those who required inpatient treatment were called resulting into decreased OPD load as compared to Pre-COVID time. [3,4,5]

Male and female ratio for OPD in both the periods saw greater male prevalence, a similar result has been seen in other studies, according to Mina et al [7] male to female ratio in ENT OPD was 1.13: 1, by Saroha et al [8] was 1.08: 1 and by Das et al [9] was 1.17:1. Males being on higher side as compared to females represents demographic pattern of our country where males forming larger portion of population.

In pre-COVID era most of the OPD visit was due to otitis externa followed by otitis media and its complications in younger age group from 0-20yrs (35%). Similar findings were reported by Mina et al, Saroha et al and Da et al [7,8,9]. It shows that younger age group seeking treatment more frequently. Rural and urban setting has no influence on age group presentation in ENT OPD. Most of the diseases are selflimiting and does not require physical visit. [3,6] In pre-COVID situation visiting OPD's was not a problem and was thought to be of additional care and safety. In COVID time visiting OPD's were always associated with increased chances to acquire infection until it is very urgent. All these factors reduced total OPD load and was also a reason for reduced number of younger age group visiting OPD in COVID time. However in COVID era maximum presentation was of 41-60 yrs age group due complications of ear infections, malignancy and its complications and are found to be more in older age group.

Age distribution of patients visiting to OPD was analysed and in pre-COVID times the mean age was 36 years while in COVID time was 40 years, it was further observed that 51% of the total OPD load comprised of the patients of age group of 40 years and below in Pre-COVID time [7,8,9] while 56% of the OPD load in the COVID time was in the age group of 41 and above.[5,6] This variation in the demography of patients visiting ENT OPD in both the periods can be attributed to reduced ENT related trauma, and infection as most of the population were restricted to their homes. Age group difference in COVID time was also due to the implementation of teleconsultation and prior appointment system. Most of the elective surgeries were postponed resulting into decreased OPD visit and only urgent and semiurgent were attended on OPD basis resulting into reduced number of younger age group visiting ENT OPD. However elderly patients are known to be associated with higher incidence of malignancy[13] and co-existent morbidity which required close monitoring and regular hospital visits. Secondly as there was restriction of elective surgeries this further reduced the OPD load of younger population.

Patients visiting the OPD were classified into emergency, semi-emergency and elective for triage purpose.[4,5,6] Malignancy related cause has been placed under the category of semiemergency as per the guidelines issued by different otolaryngological societies.[4,5] Based on the triage, it was seen that the number of elective cases were highest in both the eras but there was a significant rise in semi-emergency cases from 24 % of total cases in pre-COVID era to 39% in COVID times, this could be attributed to head and neck malignancies and associated complications which required periodical physical reviews and treatment. Patients with malignancy and related complications are always at a higher risk and requires treatment.[4,6] Triaging helped in differentiating low risk from high risk patients and is supported by both American and British Associations of Otolaryngologists. Triage helped in ensuring timely treatment to patients at high risk.

In our study, emergency OPD visit in COVID time was also less compared to pre-COVID time and were mostly associated with nasal vestibulitis/ septal haematoma followed by otological emergencies and foreign body. In 2019 maximum number of emergency visits were due to epistaxis followed by otological emergency (refer figure 1), similar findings were also reported by Sharma et al [10], Malhotra et al[11] and Rivero et al [12] in the pre-COVID times. The reduced cases of epistaxis in the COVID times could be explained by reduced outdoor activity, exposure to extremes of temperature and less road traffic accidents. [10,11,12] ENT emergencies varies in rural and urban set up. In Delhi during pre-COVID era cases due to road traffic accidents, industrial disasters and trauma were more in emergencies which reduced drastically due to imposed lockdown for 5 to 6 months. Emergency visit due to foreign body throat nose and ear was also reduced as parents were mostly restricted to home due to lockdown. Foreign body nose and ear most common in children and during COVID time there were reduced incidence of foreign body cases in children probably because of better monitoring by parents. Foreign body throat which is more common in adults was also reduced because of

reduced exposure. Traumatic casualties were on rise in pre-COVID due to increased incidence of road traffic accidents, and violence, however it reduced significantly in COVID time due to reduces outdoor activity, reduced traffic and related stress.

The number of surgeries performed were less in COVID times as compared to pre-COVID period as elective surgeries were judiciously curtailed to minimize spread of infection and to save the resources for emergencies.[3-6] Reasons for surgical intervention were classified as emergency, semi-emergency and elective. Operations due to elective and emergency reasons were much less as compared to pre-COVID time. In both the eras number of males undergoing surgical intervention were more as compared to females. The malignancy and its related problems were accorded priority as delay in intervention would worsen the prognosis. Malignancies of Head and neck region are the leading cause of cancer in Indians population accounting for 23% of all cancers in males and 6% in females. [13] Male and female ratio was same in both eras.[13] In pre-COVID era surgeries were mostly elective whereas in COVID era surgeries were mainly semi-urgent due to malignancies and malignancy related complications.[3,4,5] Our institution being a teaching institute also was a reason for more number of elective surgeries whereas in COVID time to save resources and mostly surgeries done were due to semiurgent and urgent causes. Head and neck cancers form major part of ENT related malignancies and are more common in males as compared to females. Cancer of nasopharynx represents a significant number of cases in head and neck cancers and involves males of 40 -60 years of age group.[13] This was the reason of male and female ratio being equal in both the eras. There was a significant difference in demographic pattern of ENT OPD and OT. Health care system needs to be evolved with newer ways and modalities. This pandemic has definitely imposed a challenge to health care delivery system but has taught important lessens as well. All the patients visiting OPD must be considered a potential source of infection and COVID testing must be done. Double testing should be ensured before admission or an intervention

In these two months of otolaryngological practices none of the patients and doctors reported COVID-19 positive. This is definitely a positive sign. Teleconsultation and prior appointment system is required to ensure safety to patients at high risk, pregnant females, immunocompromised patients and children. With no surety of the end of this pandemic in recent time and with warnings issued by WHO of second and third wave of pandemic, we will have to ensure safety and well being of patients as well as health personnels. Covid -19 testing for all patients before an intervention, adequate knowledge of triaging and its implementation, separate institutions for COVID positive and COVID negative patients were of extreme importance and must be followed in subsequent time as to avoid burden on health delivery personnels and to ensure safety and treatment to all. This study is surely a way forward to achieve the goal of providing treatment to all even in these challenging times.

V. Conclusion:

Health care system was overburdened with COVID-19 positive patients and the worst affected ones are the otolaryngologists. The New guideline were issued with the aims at care of both COVID and non-COVID patients and to ensure safety of all otolaryngologists. Our study concludes that there was a significant change in demographic pattern of OPD and OT in COVID and Pre-COVID era. Teleconsultation, prior appointment system for ENT visit helped in reducing the crowd in the OPD thus reducing the chances of cross infection. Triage and judicious selection of patients for surgeries also enabled better surgical outcome and judicious use of resources which are limited. Safety of the patients and surgeons in the times of pandemic was also ensured. This is definitely a positive sign and a way forward to cure.

Compliance with Ethical Standards

Conflict of interest: The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent: Informed consent was obtained from individual participants as and when necessary.

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Comparison of demographic profile of patients visiting ENT in a Tertiary Care Hospital ..

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Table 1: Comparison of ENT OPD load in Pre-COVID & COVID times

S No	Load	2019	2020	p- Value
1	Avg OPD/day	75.3± 14	16±12.4	<0.001
2	Male: Female ratio	1.6: 1	1.5: 1	0.250
3	Mean Age visit to OPD	36 yrs	40 yrs	0.048
4	Types of case in OPD			
i)	Emergency	137 (06%)	95 (20%)	
ii)	Semi-emergency/Malig	550 (24%)	185 (39%)	
iii)	Elective cases	1,603 (70%)	194 (41%)	
	Total OPD	N= 2,290 (100%)	N= 474 (100%)	<0.001

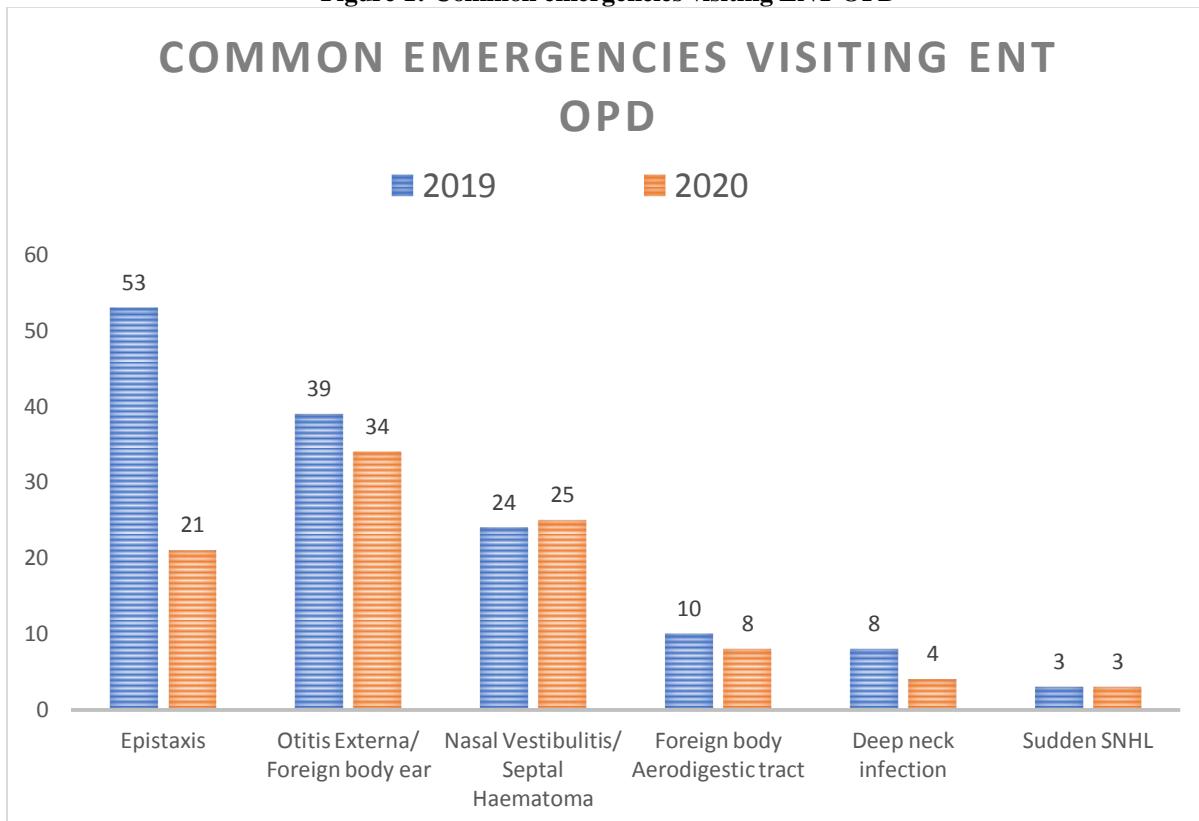
Table 2: Comparison of age group distribution in ENT OPD in Pre-COVID & COVID times

Age Group (in years)	Period	
	Pre- COVID	COVID
< 21	798 (35%)	142 (30%)
21- 40	374 (16%)	68 (14%)
41- 60	564 (25%)	160 (34%)
> 60	554 (24%)	104 (22%)
Total OPD	N= 2,290 (100%)	N= 474 (100%)

Table 3: Comparison of Operation Load in Pre-COVID & COVID period

S No	Load	2019	2020	p- Value
1	Avg Operation/ day	2.0±1	0.5± 0.5	0.02
2	Male: Female ratio	2.2: 1	1.8: 1	0.661
3	Mean Age of patient optd	45 yrs	39 yrs	0.106
4	Types of case			
i)	Emergency	N=12 (11%)	N=6 (19%)	
ii)	Semi-emergency/Malig	N=33 (30%)	N=18 (52%)	
iii)	Elective cases	N=65 (59%)	N= 10 (29%)	
	Total cases in OT	N=110 (100%)	N=34 (100%)	<0.001

Figure 1: Common emergencies visiting ENT OPD



Dr Kumari Nitu Roy, et. al. "Comparison of demographic profile of patients visiting ENT in a Tertiary Care Hospital at New Delhi, pre & during COVID pandemic." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(08), 2021, pp. 42-47.