

Otorhinolaryngology in the COVID-19 era: Are there significant differences between hospital-based and private practices?

Anasuya Guha MD¹, Jan Plzak PhD², Petr Schalek PhD¹, Martin Chovanec PhD¹

¹Department of Otorhinolaryngology, Charles University, 3rd Faculty of Medicine and University Hospital Kralovske Vinohrady, Prague, Czech Republic.

²Department of Otorhinolaryngology, Head and Neck Surgery, Charles University, 1st Faculty of Medicine and University Hospital Motol, Prague, Czech Republic.

Abstract

Aims

The COVID-19 disease had an incredible impact on both hospital-based and private practices. Practical issues faced by both types of practice were not well addressed in most studies. The aim of the study was to evaluate any significant differences between the two types of practice. We formulated 2 null hypotheses stating there were no statistical differences a month after the first cases of COVID-19 in Czech Republic firstly in the preparation amongst both practices and secondly in the supply of PPE .

Materials and Methods

We decided to design a google questionnaire to analyse the situation of ear, nose and throat (ENT) during the time of COVID-19. All the members of the Czech Society of Otorhinolaryngology and Head and Neck Surgery were invited to fill out the survey within a definitive time period.

Objectives

Statistical analyses including the Mann-Whitney U test were performed to test the hypotheses. In addition, responses from doctors were also assessed to reconfirm that there were no individual factors that affected one or both practices.

Results

Although, no statistically significant differences between both the practices, thus we could not disprove the null hypotheses, but discrepancies in individual factors were seen.

Conclusion

Despite our statistical results, we conclude that private practice had more deficits and were more financially vulnerable. Both practices suffered from staffing, patient related and unsafe environmental issues.

Key words: COVID-19, ENT, PPE, hospital-based practice, private practice

Introduction

The pandemic disease COVID-19 caused by the SARS-CoV-2 virus made a significant impact throughout hospital settings and private clinics, more so, in departments that are closely related to the disease. The department of Otorhinolaryngology or ear, nose and throat (ENT) is considered as one of the most vulnerable due to the symptoms related to the disease. Until, this ailment was actually named and deemed pandemic as well as extremely contagious, it was very probably considered as well as treated as common flu. Therefore very probably, most ENT practices were not ready and equipped for it. The nature of the disease unfolded with time, however it already led to irreparable damage and chaos around the world. Furthermore, the rapid infiltration resulted in a massive incursion of unanticipated problems such as revising safety protocols for staff and patients within a shortened period of time [1-7]; shortage of sterilization and disinfections products as well as disposable aids including unavailability in personal protective equipment (PPE) [8-9]; reorganizing staff and hospital departments to cater for COVID-19 suspected and positive patients; replacement of unavailable staff, suspected or contaminated or in personal contact with infected patients; psychological and physical exhaustion from workplace [10]; and finally financial as well as economic insecurity. Despite the publication of guidelines to protect the ENT workforce [1,2,4,6,7], it still resulted in COVID-19 related morbidity and mortality within the practice. To the best of our knowledge, no survey has been done to compare the difference in clinical practice between private clinics and hospital-based ENT departments. It is very important to identify any deficits or specific problems faced by either of the practices to ensure that as ENT clinicians, we are well prepared for handling the future problems associated with any pandemic situations. We, therefore, decided to create a survey amongst ENT doctors in Czech Republic, to compare the problems faced in practice between private clinics and hospitals in the midst of COVID-19.

Materials and methods

A survey questionnaire using google forms was designed to compare the difference in private practices and hospitals during the COVID-19 situation amongst ENT surgeons in Czech Republic. This was carried out in April 2020. It contained a variety of 17 multiple choice questions that were mandatory and the last was an optional question regarding the name of the current medical practice, so that one could chose to remain anonymous. Question number 14 had the option of adding further comments. Table 1 shows an extract from the designed questionnaire. This questionnaire was translated into Czech language. A total of 900 ENT doctors were invited to complete the survey via email with an online link to the survey with the help of the Czech Society of Otorhinolaryngology and Head and Neck Surgery. The online access to the questionnaire had a definitive period of 11 days.

On the assumption, that private practices would have suffered more than hospital-based practices, 2 sets of null hypotheses were formulated to compare current workplace provisions across hospital-based and private practices. Current refers to April 2020, a month after 1st established cases of COVID-19 in Czech Republic and at the time of this survey being carried out. This short time period was selected to evaluate the current statuses of these practices and to achieve maximal homogeneity in terms of attitude and perception of impact of COVID-19 on ENT specialists.

Whilst addressing the question related to quality of preparation of practices to COVID-19, we formulated the null hypothesis, h_0 , that there is no statistical difference between the two types of practices

Secondly, when analysing the extent to which the workplaces were equipped with PPE, a null hypothesis, h_0 , was, there is no statistical difference between hospital-based and private practices. Furthermore, we performed statistical analysis in excel which included descriptive statistics along with the Mann-Whitney U test.

Results

One hundred and eighty one ENT practitioners completed the survey. Responses were received from 18 hospitals with ENT inpatient facilities and 23 private ENT clinics. Ninety-six doctors are hospital-based and 85 work in private practices. 115 female and 66 male practitioners responded to the survey (Figure 1). 29.3% of doctors are owners of private practices, the rest are either employed by a hospital or private clinics.

The largest population comprised of doctors with an experience 21-35 years in ENT practice (Figure 2). On average above 50% of the population consisted of those with a minimum of 11 years of practice, with at least 59 doctors practicing more than 21 years.

In general, at least 156 ENT doctors have reported an improvement in their workplace in comparison to the first cases of COVID-19.

Table 2 gives a summary of results obtained from responses to the questions of preparation of workplaces and supply of PPE amongst the 2 types of practices.

A Mann-Whitney test indicated that there was no difference in quality of preparation between hospital-based (Median 2) and private practices (Median 2), $U = 3539.5$, $p = 0.0937$

The p -value was 0.0937 during the time of the study in April 2020. This means that if we would reject h_0 , the chance of type I error would be as high as 9.03%. Therefore it can be shown that no difference was seen between the practices.

In terms of provision of PPE during the time of the survey, no significant difference between the 2 types of practices (Median of 4 in both), $U = 3651$, p -value was 0.17139 and again null hypothesis has to be accepted since p was not < 0.05 .

In general, private practices reported more shortage in supplies (Figure 3). Highest proportion of deficits were seen in PPE (respirators, shield, goggles, etc.) and disposable aids (protective coats, gloves, surgical instruments, gowns, etc.), About 31.4% of all doctors reported shortage in PPE, whereas amongst a total of 75 doctors reported deficits in disposable aids.

Around 18 doctors (72% work in private practices) indicated problems with disinfection and sterilization products.

Three other major problems reported by both practices were reduced staffing, patient related problems and unsafe working environment. No special comments were received by paediatric ENT practitioners.

The unpredicted pandemic situation caused significant financial loss in both types of practices. In hospital settings, financial losses can be mainly attributed to reduction in operating lists and exhaustion of funds for special equipment whilst in private practices, where they are totally dependent on ambulatory patients; the loss has been more significant.

Discussion

A large population of our study group comprised of female practitioners, most of whom are associated with private practices. Among all the respondents, 71.7% were either employed by a private practice or a hospital. No gender difference was noted amongst doctors attached to hospitals. Age predilection, although difficult, it can be assumed that 15% of doctors are in more than 35 years of practice and are definitely 60 years and above in age. Furthermore 32.6% of all doctors associated with 21-35 years of practice comprised the largest experience-based practicing group in this study sample. Practitioners of 50 years or more that are in hospital settings did not report any significant personal health issues. Current practice guidelines suggest not allowing older doctors to be in the frontline alongside COVID-19 patients [11,12]. In this specialty, this would be difficult to achieve, since most patients present with symptoms similar to those encountered in any pandemic associated with a respiratory virus, and have to be considered as potentially positive until and unless proven otherwise. Our assumption was proved wrong. In terms of current situation amongst otorhinolaryngology practices in response to COVID-19, no significant differences was observed amongst both types of practices. Furthermore majority of practitioners reported

moderately to well-prepared workplaces. Although 53% of all doctors from both clinical settings reported having adequate PPE, both practices still showed two main deficits, namely PPE and disposable aids. Deficits in PPE have been well published [9], thus encouraging practices to maintain an inventory in helping health establishments estimate provisions. Furthermore, private clinics also suffered significantly from the shortage of disinfection and sterilization products.

Financial losses were encountered by both practices, but owners of private practices were more vulnerable.

Conclusion

Although our study sample was small and responses were somewhat limited, as maybe expected under such difficult circumstances, it has led to some significant findings.

It can be concluded, that although no significant difference is observed in terms of preparation and provision of PPE amongst the hospital-based and private practices, both types of clinical practices have been significantly affected. It should be noted, with lack of any support and shortage of medical supplies, ENT private clinics have had to bear more personal losses financially. These difficulties should be noted by relevant authorities to ensure the continued care of patients and support of personnel across private practices. In any infectious situation, all personal protective gear and medical supplies should be provided in ample amounts thus reducing the risk of cross-contamination and ensuring health and safety of both staff and patients. Important information related to the progress and containment of a pandemic disease including support for affected health personnel should be mandatory whether it is a hospital-based practice or private clinic. We would recommend a more detailed and wider study to fully explore all the practical problems that can be faced within the otorhinolaryngology practice.

Acknowledgements

Not applicable

References

1. ENT UK. Guidance for ENT during the COVID-19 pandemic (March 2020). <https://www.entuk.org/guidance-ent-during-covid-19-pandemic>. Last accessed July 23, 2020.
2. Tysome JR, Bhutta MF. COVID-19: Protecting our ENT Workforce. *Clin Otolaryngol*. 2020; 45: 311-312. doi:10.1111/coa.13542
3. Krajewska J, Krajewski W, Zub K, Zatoński T. COVID-19 in otolaryngologist practice: a review of current knowledge. *Eur Arch Otorhinolaryngol*. 2020;1-13. doi:10.1007/s00405-020-05968-y
4. ENT UK. Clinical guide to surgical prioritisation during the coronavirus pandemic. (April 2020). <https://www.entuk.org/clinical-guide-surgical-prioritisation-during-coronavirus-pandemic-ent-specific>. Last accessed July 23, 2020.
5. McGrath BA, Brenner MJ, Warrillow SJ et al. Tracheostomy in the COVID-19 era: global and multidisciplinary guidance. *The Lancet Respir Med*. 2020; 8(7):717-25
6. Leboulanger N, Sagardoy T, Akkari M, et al. COVID-19 and ENT Pediatric otolaryngology during the COVID-19 pandemic. Guidelines of the French Association of Pediatric Otorhinolaryngology (AFOP) and French Society of Otorhinolaryngology (SFORL) [published online ahead of print, 2020 Apr 18]. *Eur Ann Otorhinolaryngol Head Neck Dis*. 2020;S1879-7296(20)30100-9. doi:10.1016/j.anorl.2020.04.010
7. Simon F. Ethical questions related to Covid-19 and ENT practice. *Eur Ann Otorhinolaryngol Head Neck Dis*. 2020;S1879-7296(20)30099-5. doi:10.1016/j.anorl.2020.04.009

8. Offeddu V, Yung CF, Low MSF, Tam CC. Effectiveness of masks and respirators against respiratory infections in healthcare workers: a systematic review and meta-analysis. *Clin Infect Dis.* 2017;65(11):1934-1942.
9. O Sullivan ED. PPE guidance for covid-19: be honest about resource shortages. *BMJ.* 2020;369:m1507. doi: 10.1136/bmj.m1507.
10. Brooks SK, Dunn R, Amlot R, Rubin GJ, Greenberg N. A systematic, thematic review of social and occupational factors associated with psychological outcomes in healthcare employees during an infectious disease outbreak. *Journal of Occupational and Environmental Medicine.* 2018; 60(3), 248-257.
<https://doi.org/10.1097/JOM.0000000000001235>
11. Godlee F. Protect our healthcare workers.
BMJ. 2020; 369 doi: <https://doi.org/10.1136/bmj.m1324>
12. Ashcroft J. Keep older healthcare workers off the covid-19 front line. *BMJ.* 2020; 369:m1511. doi: 10.1136/bmj.m1511.

Table 1
Blinded

Table 2

	<i>Preparation of practices</i>		<i>Availability of PPE</i>	
	<i>hospital-based</i>	<i>private practice</i>	<i>hospital-based</i>	<i>private practice</i>
Responses				
1 Completely unprepared/ No equipment	0	0	0	1
2 Minimally prepared/ Minimum equipment	3	5	2	2
3 Moderately prepared/ Basic equipment	36	39	34	36
4 Well prepared/ Adequate equipment	46	35	53	43
5 More than well prepared/ More than necessary equipment	11	6	7	3
Count	96	85	96	85
Range	4	4	3	4
Minimum	1	1	2	1
Maximum	5	5	5	5
Mean	2.21875	2.247058824	3.677083333	3.529411765
Standard Error	0.100659149	0.093043591	0.065384812	0.072158081
Median	2	2	4	4
Mode	2	2	4	4
Standard Deviation	0.986254211	0.857819527	0.640637703	0.665264632
Sample Variance	0.972697368	0.735854342	0.410416667	0.442577031
Sum	213	191	353	300
Confidence Level(95.0%)	0.199833676	0.185027385	0.129805263	0.143494257
Rank sum	9276.5	7194.5	9165	7306
U	4620.5	3539.5	4509	3651

Figure and Table legends

Figure 1. Gender based comparison between private and hospital practice

Figure 2. Years of ENT practice after completion of medical school

Figure 3. Items deficient in current practice

Table 1 Extract of Face-to-face with COVID-19: Voice of ENT doctors in Czech Republic (*A National Survey*) questionnaire

Table 2 shows the Comparison between two types of practices in relation to preparation during COVID-19 and workplace availability of PPE in current times