



## RESEARCH

# CHANGES IN GERIATRIC OTOLARYNGOLOGIC EMERGENCIES DURING THE COVID-19 PANDEMIC

Turkish Journal of Geriatrics  
DOI: 10.31086/tjgeri.2021.255  
2021; 24(4): 578-584

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Received: Kas 16, 2021  
Accepted: Ara 06, 2021

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### ABSTRACT

**Introduction:** Due to restrictions and fear of contamination, access to health services has become difficult during the Covid-19 pandemic, especially for geriatric patients. The fact that hospitals allocate most of their capacity to pandemic services has limited geriatrics' outpatient services. This situation has caused elderly people to postpone their hospital appointments, including otolaryngologic ones, and go to the emergency department in case of necessity. This study aimed to compare the causes and frequency of admission of geriatric otolaryngologic patients to the emergency department during the first year of the Covid-19 pandemic to those one year before the pandemic.

**Materials and Method:** Geriatric patients who presented to the emergency department for otolaryngologic reasons during the year before the pandemic and the first year of the pandemic were screened retrospectively. 1,278 patients were included in the study. The reasons and frequency of admission as well as the hospitalization rate were compared.

**Results:** In both periods, the most common reason for admission was epistaxis. While admissions due to facial paralysis and undiagnosed head and neck masses increased during the pandemic ( $p = 0.004$ ,  $p = 0.001$ ), hospitalization rates decreased ( $p = 0.016$ ).

**Conclusion:** During the pandemic, no change was detected in the number of geriatric patients and the most common reason for admission to the emergency department. Compared to the pre-pandemic period, presentations for facial paralysis increased. The number of presentations due to an undiagnosed head and neck mass, which were very rare in the pre-pandemic period, increased significantly during the pandemic.

**Keywords:** Covid-19; Otolaryngology; Emergencies; Aged.



## INTRODUCTION

The SARS-CoV-2 infection, which was first documented in China in December 2019, rapidly turned into a pandemic that is affecting all humanity (1). After the notification of the first Covid-19 case in Turkey on March 10, 2020, restrictions began to negatively impact social life. The limitations on using public transport and the curfews applied to people over the age of 65 made it difficult for these individuals to receive treatment for non-Covid-19-related health problems (2). Hospitals' allocation of outpatient and inpatient services mostly to Covid-19 patients caused elderly people to postpone their hospital appointments, including otolaryngologic ones, and go to the emergency department in case of necessity.

This study aimed to compare the reasons and frequency of admission of geriatric otolaryngologic patients to the emergency department during the first year of the Covid-19 pandemic to those one year before the pandemic. To the best of our knowledge, this is the study with the largest population that investigates the frequency of geriatric otolaryngologic emergencies.

## MATERIALS AND METHOD

This is a retrospective case-control study that was conducted at Ankara City Hospital between March 2019 and March 2021 in accordance with the principles of the Helsinki Declaration and with the approval of Ankara City Hospital's Institutional Ethics Committee.

All the patients aged 18 and over who presented to the emergency department and were sent for consultation to the ENT clinic between March 10, 2019, and March 10, 2021, were retrospectively screened. One year, starting on March 10, 2020 (the day when the first Covid-19 cases were found in Turkey), was considered the pandemic period, while the year between March 10, 2019, and March 10, 2020, was considered the pre-pandemic period.

The patients were divided into two groups (pre-pandemic and pandemic) according to their presentation dates. In each group, the age and gender of the patients, the reason for being examined at the ENT clinic, and whether patients had been hospitalized were recorded. The reasons for admission were categorized as follows: otologic disorders (vertigo, peripheral facial paralysis, sudden hearing loss, foreign body in the external auditory canal), bleedings (epistaxis, hemoptysis, external auditory canal bleeding, tracheotomy bleeding, head and neck vascular injury), trauma (maxillofacial trauma, isolated nasal fracture, burn), head and neck masses, infection (external otitis, otitis media, upper respiratory tract infection, sialoadenitis, deep neck infection), and upper aerodigestive system obstruction (foreign body in the upper airway, dysphagia, difficult intubation, dyspnea, tracheotomy and cannula pathologies, corrosive ingestion and inhalation, voice prosthesis disorders).

All the patients aged 65 and over who were examined at the emergency department were included in the study. During the pandemic period, patients with suspected Covid-19 infection and those with a positive PCR test were excluded from the study. During this period, patients who were examined for upper respiratory tract infections, whose PCR test was negative, and for whom Covid-19 was ruled out by the emergency physicians were included in the study. The frequency of admissions and hospitalization rates of the patients in both groups were compared using statistical methods.

### *Statistical Analysis*

All the statistical analyses were performed using SPSS software (SPSS version 22, Chicago, IL, USA); a value of  $p < 0.05$  was considered to be statistically significant. In the case of bivariate hypotheses involving continuous variables, the t-test was used for normally distributed independent groups and the Mann-Whitney test for abnormally distributed groups. To demonstrate the suitability of the par-

ametric test, the normality of the data was determined with the single-sample Kolmogorov-Smirnov test. The chi-square test was used to determine whether the distribution of categorical variables differed between the two study groups.

## RESULTS

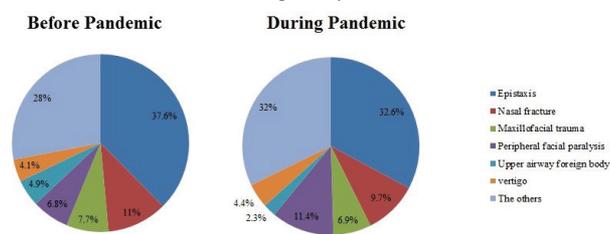
In the one year before the pandemic (BP), the total number of patients aged 18 and over who presented for otolaryngologic emergencies was 4,310. Of these, 636 (14.7%) were aged 65 or older. During the pandemic (DP), the total number of patients aged 18 and over in one year was 4,440. Of these, 642 (14.4%) were aged 65 or older. The number of admissions in the two periods was not statistically different ( $p = 0.69$ ). The mean age of the patients in the BP group was  $74.8 \pm 7.8$  years, while the mean age of the patients in the DP group was  $74.9 \pm 7.4$  years. There were 274 males (43%) and 362 females (57%) in the BP group, and 315 males (49%) and 327 females (51%) in the DP group (Table 1).

Of the pre-pandemic patients, 282 (44.3%) were admitted for bleeding, 118 (18.6%) for trauma, 103 (16.2%) for otologic disorders, 79 (12.4%) for upper aerodigestive system obstruction, 53 (8%) for infections, and 1 (0.1%) for an undiagnosed head and neck mass. Admissions during the pandemic period were 240 (37.4%) for bleeding, 106 (16.5%) for trauma, 130 (20.2%) for otologic disorders, 83 (12.9%) for upper aerodigestive system obstruction, 70 (10.9%) for infections, and 13 (2%) for undiagnosed head

and neck mass. During the pandemic, there was a significant decrease in the frequency of admission for bleeding ( $p = 0.01$ ), while there was a significant increase in admission for undiagnosed mass ( $p = 0.001$ ). The remaining admission frequencies were similar. The hospitalization rate also decreased significantly during the pandemic ( $p = 0.016$ ) (Table 2).

The most common reason for admission was epistaxis both before and during the pandemic (239 [37.6%] and 209 [32.6%], respectively;  $p = 0.059$ ). This was followed by isolated nasal fracture (70 [11%]), maxillofacial trauma (49 [7.7%]), peripheral facial paralysis (43 [6.8%]), and foreign body in the upper airway (31 [4.9%]) before the pandemic. Peripheral facial paralysis was the second most common reason for admission during the pandemic period (73 [11.4%]). Peripheral facial paralysis increased significantly during the pandemic period compared to the pre-pandemic period ( $p = 0.004$ ). Peripheral facial paralysis was followed by isolated nasal fracture (62 [9.7%]), maxillofacial trauma (44 [6.9%]), and vertigo (28 [4.4%]) (Table 3) (Figure 1).

**Figure 1.** The most common reasons for admission before and during the pandemic.



**Table 1.** Age and gender distribution of the groups

	BP (n=636 %100)	DP (n=642 %100)
Age*	74.8 ± 7.8	74.9 ± 7.4
Female	362 (%57)	327 (%51)
Male	274 (%43)	315 (%49)

\*mean±standard deviation, BP: Before pandemic, DP: During pandemic, n: Total group count



Epistaxis was the most common reason for admission for a total of 1,278 patients before (636 patients) and during (642 patients) the pandemic. This was followed by isolated nasal fracture, peripheral facial paralysis, maxillofacial trauma, and vertigo (Table 4).

### DISCUSSION

Given the increasing population of elderly around the world, the care, diagnosis, and treatment of geriatric patients has begun to occupy an important

place in medicine. The diagnosis and treatment of geriatric patients are handled meticulously in otolaryngology, as in most other branches of medicine, due to the additional, age-related diseases these patients exhibit. During the treatment of this category of people, the morbidities and sometimes mortality that may be caused by some otolaryngologic emergencies require significant attention.

The Covid-19 pandemic has disrupted the routines of the majority of humanity. Perhaps the most affected by this situation have been the elderly. Recommendations for geriatric patients not to go

**Table 2.** Comparison of the frequencies and hospitalization rates of geriatric otolaryngological emergencies before and during the pandemic.

	BP (n=636 %100)	DP (n=642 %100)	p
Bleeding	282 (%44.3)	240 (%37.4)	0.01
Trauma	118 (%18.6)	106 (%16.5)	0.33
Otologic	103 (%16.2)	130 (%20.2)	0.06
UAD obstruction	79 (%12.4)	83 (%12.9)	0.78
Infection	53 (%8)	70 (%10.9)	0.11
Undiagnosed mass	1 (%0.1)	13 (%2)	0.001
Hospitalization	96 (%15)	68 (%10)	0.016

BP: Before pandemic, DP: During pandemic, n: Total group count, UAD: Upper aerodigestive

**Table 3.** The most common reasons for admission before and during the pandemic.

	BP	DP	p
Epistaxis	239 (%37.6)	209 (%32.6)	0.059
Isolated nasal fracture	70 (%11)	62 (%9.7)	0.42
Maxillofacial trauma	49 (%7.7)	44 (%6.9)	0.55
Peripheral facial paralysis	43 (%6.8)	73 (%11.4)	0.004
Foreign body in the upper airway	31 (%4.9)	15 (%2.3)	0.014
Vertigo	26 (%4.1)	28 (%4.4)	0.80

BP: Before pandemic, DP: During pandemic

to hospitals unless it is strictly necessary are aimed at preventing both the spread of the disease and an increase in hospitals' workloads (4). According to our study, the number of geriatric patients who presented to the emergency department with otolaryngologic problems in the pre-pandemic period and during the pandemic was similar. The ratio of geriatric patients in all otolaryngologic emergencies was 14.7% in the pre-pandemic period and 14.4% during the pandemic one. In a study conducted in Taiwan before the pandemic, this rate was found to be 13.9% (5).

Bleeding was the most common reason for admission to the emergency department both in the pre-pandemic period and during the pandemic. However, the frequency of admission due to bleeding decreased significantly during the pandemic. Admissions due to other reasons, which increased during the pandemic, may have decreased the bleeding admissions proportionally. Epistaxis was the most common cause of both bleeding and all admissions reasons in the two periods. The pan-

demic did not reduce epistaxis admissions to the emergency department. There are different opinions in the literature regarding the most common cause of geriatric otolaryngologic emergencies (5-8). Yildirim et al. (6) reported the most common reason for admission to the emergency department as maxillofacial trauma. Unlike our study, Yildirim et al. (6) included patients with isolated nasal fractures in the maxillofacial trauma group. In our study, maxillofacial trauma and isolated nasal fracture are the second most common cause even when evaluated together. Chi et al. (5) reported upper respiratory tract infections as the most common geriatric otolaryngologic emergency. The fact that the treatment of uncomplicated or mild upper respiratory tract infections was arranged by the emergency department physicians (not the ENT clinic) in the hospital where we did our research may have caused the lower frequency of admission in this patient group in our study.

Our research showed that the frequency of admission to the emergency department with facial paralysis among geriatric patients increased significantly during the Covid-19 pandemic. Previous studies have reported an increased incidence of facial paralysis in Covid-19 patients, but there are different opinions about the increased risk in the normal population (9-12). A study conducted in Italy similarly found an increase in the frequency of admission to the emergency department due to facial paralysis during the pandemic compared to the same period of the previous year (11). In contrast, Mutlu et al. (12) found the incidence of facial paralysis during the pandemic period to be similar to previous years. Facial paralysis patients in our study did not have the classic symptoms of Covid-19. However, although we do not have enough data to establish a causal relationship between the two conditions, our study shows that admissions to the emergency department due to facial paralysis among geriatric patients increased during the pandemic period. During the pandemic, the difficulty in getting an appointment to the ENT clinic expe-

**Table 4.** Frequency of total admissions before and during the pandemic.

Before Pandemic (636 patients) + During Pandemic (642 patients) = 1278 patients (%100)	
Epistaxis	448 (%35)
Isolated nasal fracture	132 (%10)
Peripheral facial paralysis	116 (%9)
Maxillofacial trauma	93 (%7)
Vertigo	54 (%4)
Foreign body in the upper airway	46 (%3.5)
Dyspnea	43 (%3.3)
Deep neck infection	42 (%3.2)
Hearing loss	39 (%3)
External otitis	35 (%2.7)
The others	230 (%18)



rienced by patients with facial paralysis may have increased these admissions to the emergency department.

Another geriatric patient group whose frequency of admission to the emergency department increased significantly during the pandemic period was patients with an undiagnosed head and neck mass. The constant stay-at-home campaigns, the curfews applied to those over the age of 65, the fear of contamination, and the fact that hospitals allocated most of their outpatient services to Covid-19 patients may have delayed the access of this patient group to the relevant departments. This may, in turn, have boosted the admissions of people to the emergency department for diagnosis and treatment following their increasing complaints. The Covid-19 pandemic has caused delays in the diagnosis and treatment of many diseases, especially head and neck cancers (13,14). The study by Tevetoğlu et al. (15) showed that the probability of catching head and neck masses at an advanced stage increased

during the pandemic compared to the pre-pandemic period. The authors attributed this to the delay in admission and the disruption caused by the fact that most hospital resources were reserved for Covid-19 patients.

Compared to the pre-pandemic period, hospitalization rates due to geriatric otolaryngologic emergencies were significantly reduced during the pandemic. This situation may have been caused by a narrowing of hospitalization suggestions by physicians or the fact that patients did not accept hospitalization due to the risk of contamination.

In conclusion, when the emergency admissions of geriatric otolaryngology patients were examined, epistaxis was found to be the most common reason for admission both before and after the pandemic. During the pandemic, admissions for facial paralysis and undiagnosed head and neck masses increased, while the rate of hospitalization decreased.

**Conflict of Interest:** The authors declare that there is no conflict of interest.

## REFERENCES

1. World Health Organization Coronavirus Disease (COVID-19) Dashboard. [Internet]. Available from: <https://covid19.who.int/>. Accessed: 26.03.2021.
2. Cakir B. COVID-19 in Turkey: Lessons Learned. *J Epidemiol Glob Health.* 2020;10(2):115-7. (DOI: 10.2991/jegh.k.200520.001). PMID: 32538025
3. Eibling D, Kost K. The Emerging Field of Geriatric Otolaryngology. *Otolaryngol Clin North Am.* 2018 Aug;51(4):847-852. (DOI: 10.1016/j.otc.2018.03.011). PMID: 29779614
4. Ilgili O, Gökçe Kutsal Y. Impact of Covid-19 Among the Elderly Population. *Turk Geriatri Derg.* 2020;23(4):419-423. (DOI: 10.31086/tjgeri.2020.179).
5. Chi T, Chen R., Yuan C. Geriatric Otolaryngologic Emergencies at a Teaching Hospital in Taiwan. *Int J Gerontol* 2016;10(4):223-226. (DOI: 10.1016/j.ijge.2015.10.011).
6. Yıldırım S, Çiler Büyükcatalay Z, Agha Oghali AMN, Kılıç R, Dursun G. Characteristics of Otorhinolaryngological Emergencies in the Elderly. *Turk Arch Otorhinolaryngol* 2021 Mar;59(1):8-13. (DOI: 10.4274/tao.2021.6193). PMID: 33912855
7. Adegbiji W, Aremu S, Aluko A. Geriatric Otorhinolaryngology, Head and Neck Emergency in a Nigerian Teaching Hospital, Ado Ekiti. *Int J Otolaryngol Head Neck Surg* 2019;08(3):81-90. (DOI: 10.4236/ijohns.2019.83009).
8. Dagan E, Wolf M, Migirov LM. Why Do Geriatric Patients Attend Otolaryngology Emergency Rooms? *Isr Med Assoc J.* 2012 Oct;14(10):633-6. PMID: 23193786
9. Tamaki A, Cabrera CI, Li S et al. Incidence of Bell Palsy in Patients with COVID-19. *JAMA Otolaryngol Head Neck Surg.* 2021 Aug 1;147(8):767-768. (DOI: 10.1001/jamaoto.2021.1266). PMID: 34165518.
10. Lima MA, Silva MTT, Soares CN et al. Peripheral Facial Nerve Palsy Associated with COVID-19. *J Neurovirol* 2020 Dec;26(6):941-944. (DOI: 10.1007/s13365-020-00912-6). PMID: 33006717
11. Codeluppi L, Venturelli F, Rossi J, et al. Facial Palsy During the COVID-19 Pandemic. *Brain Behav*

- 2021;11(1):e01939. (DOI: 10.1002/brb3.1939). PMID: 33159420
12. Mutlu A, Kalcioğlu MT, Gunduz AY, Bakici B, Yılmaz U, Cag Y. Does the SARS-CoV-2 Pandemic Really Increase the Frequency of Peripheral Facial Palsy? *Am J Otolaryngol* 2021;42(5):103032. (DOI: 10.1016/j.amjoto.2021.103032). PMID: 33857779
  13. Rao V, Arakeri G, Subash A, et al. Decreased Cancer Consultations in the COVID-19 Era: A Concern for Delay in Early Cancer Diagnosis in India. *JCO Glob Oncol* 2021;7:408-409. (DOI: 10.1200/GO.21.00030). PMID: 33760640
  14. Werner MT, Carey RM, Albergotti WG, Lukens JN, Brody RM. Impact of the COVID-19 Pandemic on the Management of Head and Neck Malignancies. *Otolaryngol Head Neck Surg.* 2020 Jun;162(6):816-817. (DOI: 10.1177/0194599820921413). PMID: 32312163
  15. Tevetoğlu F, Kara S, Aliyeva C, Yıldırım R, Yener HM. Delayed Presentation of Head and Neck Cancer Patients During COVID-19 Pandemic. *Eur Arch Otorhinolaryngol* 2021 Dec;278(12):5081-5085. (DOI: 10.1007/s00405-021-06728-2). PMID: 33674926