Original Article

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The Impact of COVID-19 on Head and Neck Cancer Outpatient Care: Our Experience at a Tertiary Care Center in Southern Taiwan

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Objective: During the COVID-19 pandemic, outpatient visits have decreased due to the risk of exposure to aerosolized respiratory secretions, especially in the otorhinolaryngologic clinic. Delay in diagnosis and treatment for head and neck cancer was a major concern. We tried to assess the impact of COVID-19 on outpatient care for patients with head and neck cancers at E-Da Hospital.

Methods: We reviewed the medical records of all outpatients with newly diagnosed head and neck cancers and those diagnosed with head and neck cancers at the Department of Otorhinolaryngology of E-Da Hospital between January and June, 2020. The medical records of patients with their head and neck cancers diagnosed between January and June, 2019 were scrutinized for comparison. We utilized SigmaPlot 13 (Systat Software, San Jose, CA) with Chi-squared test for statistical analysis with significance set at $p < 0.05$.

Results: There were a total of 24,346 outpatient visits at our otorhinolaryngologic department between January and June, 2019 in comparison with 18,983 visits (22% reduction) during the COVID-19 pandemic in 2020. The total numbers of head and neck cancer outpatients were 6,386 in 2019 and 5,915 in 2020, and the proportion of head and neck cancer outpatients to total outpatients showed significant increase during the COVID-19 pandemic (31.2% in 2020 vs. 26.2% in 2019, $p < 0.001$). A significant increase in the proportion of patients with newly diagnosed head and neck cancers to the total number of outpatients was also noted in 2020 compared to that in 2019 (1.3% vs. 1.0% of total outpatient cases, $p = 0.007$). The proportion of patients with newly diagnosed late-stage head and neck cancers to the total number of outpatients has slightly increased in 2020 compared to that in 2019 (0.64% vs. 0.62% of the total number of outpatient cases, $p = 0.864$).

Conclusions: The impact of COVID-19 on head and neck cancer care at E-Da Hospital is negligible due to effective infection control policies, a trusting relationship between the patients and the medical professionals, adequate recognition of the need for timely treatment of head and neck cancers among the general public, as well as a strong sense of social responsibility among physicians. Nevertheless, a flexible ambulatory care program for patients with head and neck cancers according to the severity of the pandemic is still warranted for maintaining a delicate balance between the delivery of optimal care and the risk of nosocomial infection through the dissemination of respiratory secretions.

Key words: coronavirus, COVID-19, head and neck cancer, outpatient, otolaryngology

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Introduction

The COVID-19 pandemic may lead to delayed diagnosis, treatment, and follow-up of upper aerodigestive diseases including head and neck cancers because the patients and the care providers may tend to avoid the high risk of COVID-19 transmission due to inadvertent contact with aerosolized nasal, pharyngeal, or tracheal secretions during many routine procedures at the otorhinolaryngologic clinic.[1-3] The outpatient department, which is on the frontline of diagnosing and determining the subsequent therapeutic strategies for patients with head and neck cancers (e.g., surgery, chemotherapy, radiotherapy), plays a crucial role in preventing delay in patient evaluation and treatment that adversely impacts oncologic and functional outcomes.[4] Therefore, to determine the impact of COVID-19 on head and neck cancer patient care, we investigated the cancer patient care provided at the outpatient department of E-Da Hospital.

Materials and Methods

We obtained the numbers of all outpatients, outpatients with newly diagnosed head and neck cancer, those with newly diagnosed late-stage head and neck cancers, and the total number of outpatients with head and neck cancers visiting the Department of Otorhinolaryngology of E-Da Hospital from January to June in 2020 when the impact of COVID-19 on Taiwan was most notable. For comparison, the numbers of patients from a corresponding period in 2019 were acquired. Statistical evaluations were performed by Chi-squared test using SigmaPlot 13 (Systat Software, San Jose, CA) to compare the two objectives. A $p < 0.05$ was considered significant.

Results

The total number of outpatients (Fig. 1) visiting the otorhinolaryngologic department from January to June were 24,346 and 18,983 in 2019 and 2020, respectively (i.e., 22% reduction). The number of patients with newly diagnosed head and neck cancers (Fig. 2) were 245 in 2019 vs. 243 in 2020 (1.0% vs. 1.3% of all outpatients, respectively, $p = 0.007$). The number of patients with late-stage newly diagnosed head and neck cancers (Fig. 3) were 152 in 2019 vs. 121 in 2020 (0.62% vs. 0.64% of total outpatient cases, respectively, $p = 0.864$). The number of all head and neck cancer outpatients (Fig. 4) were 6,386 in 2019 vs. 5,915 in 2020 (26.2% vs. 31.2% of total outpatient cases, respectively, $p < 0.001$) (Fig. 5). Of all the outpatients diagnosed with head and neck cancers in 2019 and 2020, 3.83% and 4.10% were newly diagnosed, respectively ($p = 0.441$). In addition, 2.38% and 2.04% of all outpatients having head and neck cancers presented with newly-diagnosed late-stage diseases in 2019

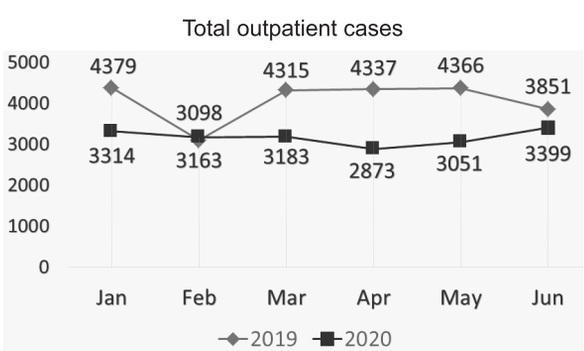

Fig. 1 Monthly changes in the number of outpatients visiting the otolaryngology department between January and June in 2019 and 2020.

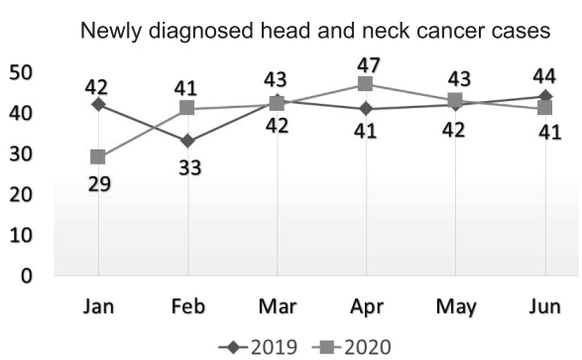

Fig. 2 Monthly fluctuations in the number of outpatients with newly diagnosed head and neck cancers between January and June in 2019 and 2020.

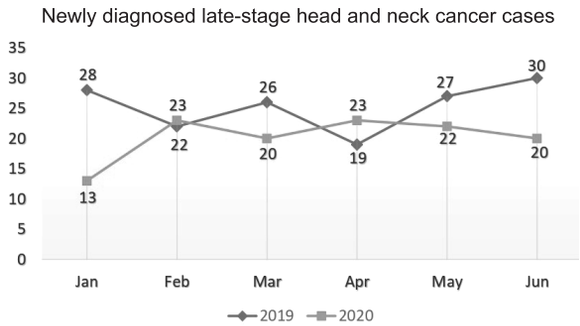

Fig. 3 Monthly changes in the number of outpatients with newly diagnosed late-stage head and neck cancers between January and June in 2019 and 2020.

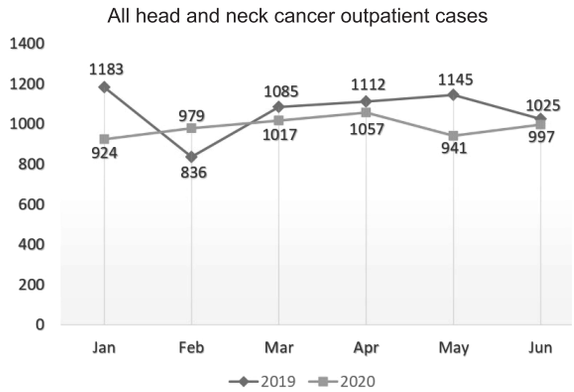

Fig. 4 Monthly changes in the total number of outpatients diagnosed with head and neck cancers between January and June in 2019 and 2020.

and 2020, respectively ($p = 0.208$).

Discussion

COVID-19 had a major impact on the patient triage and the allocation of health care resources. In many countries, the outpatient visits to the otorhinolaryngology clinic were either cancelled or postponed in response to the pandemic.[5-6] Because the diagnostic and therapeutic procedures for patients with head and neck cancers are associated with an aerosolization of respiratory pathogens,[7-8] management of this patient population has become an ethical issue[1] on which there are no unanimous practice recommendations. Although some studies advocated postponing the management of patients presenting with low-grade malignancies (e.g., early oral cancer, well-differentiated thyroid cancer, early salivary gland cancer),[6,9,10] delayed treatments carry a definite risk of tumor upstaging that adversely affects oncologic outcomes.

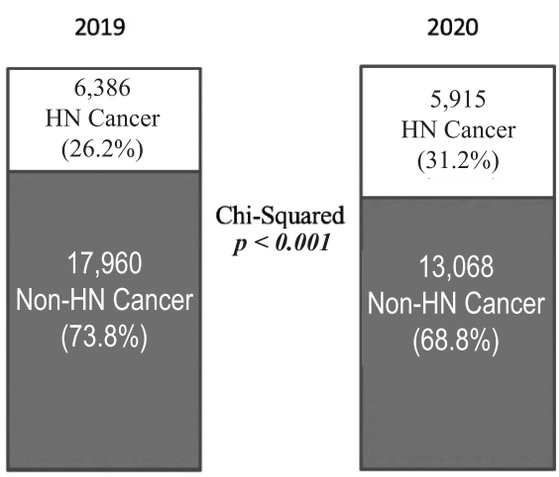

Fig. 5 The proportion of outpatients with head and neck (HN) cancers to the total number of outpatients showing a significant increase during the COVID-19 pandemic (31.2% in 2020 vs. 26.2% in 2019, $p < 0.001$).

Some studies have shown a marked reduction in the number of outpatients with head and neck cancers as well as that of related surgeries during the pandemic.[9,11] Our study showed no significant decrease in the number of patients with head and neck cancers despite a notable reduction in the total number of outpatients (22%) during the peak of the pandemic, highlighting a significant increase in the proportion of the former during that period. We also found a significant increase in the proportion of patients with newly diagnosed head and neck cancers and a slight elevation in the proportion of newly diagnosed late-stage head and neck cancer patients relative to the total number of outpatients in 2020 compared to those in 2019. This may imply a reduction in hospital visits by patients with relatively non-urgent or non-malignant diseases, thereby increasing hospital capacity to deal with more critical cases and to provide better care (e.g., cancer surveillance and operative wound care) for those in need. The lack of a significant fluctuation in the

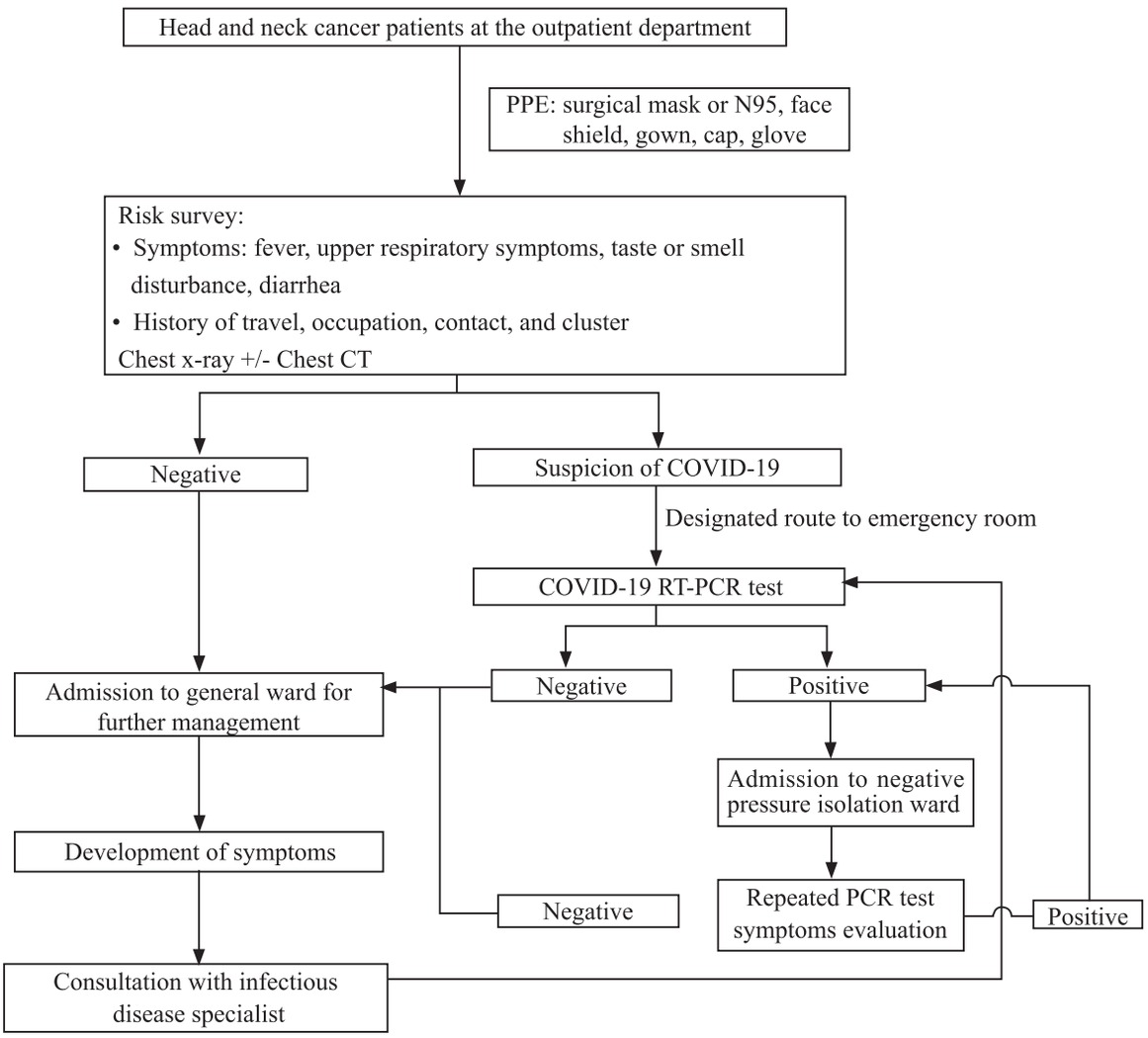

Fig. 6 Management algorithm of outpatients with head and neck cancers during the COVID-19 pandemic. PPE: personal protective equipment.

proportions of patients with newly-diagnosed head and neck cancers regardless of stages and those with late-stage diseases to the total number of outpatients with head and neck cancers may suggest a lack of significant impact of the pandemic on the patients' willingness of hospital visits regardless of the reasons (e.g., new occurrence of symptoms or post-treatment follow-up). The favorable outcomes may be attributable to the following four factors.

Effective precautions against the pandemic

One of the major challenges specific to the management of outpatients with head and neck cancers during this pandemic is the significant risk associated with examination, diagnosis, and treatment. In addition to surgical mask and frequent hand washing, personal protective equipment such as N95 respirators, gowns, cap, gloves, and face shield is required.[12,13] We also followed the policy of the Taiwan Centers for Disease Control and that of our hospital including the implementation of access control with temperature monitoring, history taking of travel, occupation, contact and cluster, patient diversion, and work assignments. All patient transfers within the hospital must be on a preplanned transport route to limit possible viral transmission. Some newly published guidelines are also available for reference.[6,14,15] We have established a guideline for the management of

outpatients with head and neck cancers through collaborating with the infectious disease department, the emergency department, the anesthesia department, the intensive care unit, and the otorhinolaryngology department (Fig. 6).

Established rapport between patients and medical care providers

Since its establishment in 2004, E-Da Hospital has made a sustained effort to develop a high-quality head and neck cancer program that provides excellent patient care and outcomes. The close rapport that we have established with patients in southern Taiwan through these years may partly explain the lack of a significant impact of the pandemic on patient flow.

Improved public insight into the importance of cancer treatment

The incidence and mortality rate of oral cancer ranked fourth among all the malignancies in Taiwanese males. Accordingly, the Health Promotion Administration, Ministry of Health and Welfare, Taiwan, has aroused public awareness of head and neck cancers by implementing the policy of general oral cancer screening targeting the population aged thirty and above with betel nut chewing and smoking history. The increased public awareness of the importance of early cancer diagnosis and treatment may contribute to the uninterrupted hospital visits for patients with newly diagnosed cancers.

Sense of social responsibility among physicians

The high risk of contracting COVID-19 through airborne transmission of aerosols from patients puts great pressure on the head and neck surgeons as well as their families and friends.[1] However, we are still willing to provide an unblemished level of care and maintain doctor-patient relationships with our best effort because patients with head and neck cancers are particularly vulnerable to the pandemic and need both physical and mental support for optimal cancer management.

In conclusion, the current study showed that the COVID-19 pandemic had a limited impact on head and neck cancer outpatient care at our institute probably attributable to a number of factors, suggesting that an alteration of our present management strategy for this patient population may not be necessary. On the other hand, timely adjustment of strategy to achieve a delicate balance between the risk of contracting COVID-19 among caregivers through aerosol transmission and that of delayed treatment for patients with head and neck cancers remains crucial as the pandemic progresses. The bottom line is to minimize the risk of viral transmission without compromising the oncologic outcomes of this patient population.

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