

Research article

Head and neck cancer in Hasan Sadikin general hospital: A cross-sectional study before and during COVID – 19 pandemics

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ABSTRACT

The world is fighting against coronavirus disease 2019. Cancer patients are highly immunocompromised by cancer treatment. The conditions potentially increase the mortality and morbidity of head and neck cancer patients. This study aims to identify head and neck cancer prevalence in the Department of Otorhinolaryngology-Head and Neck Surgery Hasan Sadikin General Hospital, Bandung, from the intended year before and during the pandemic. Data were obtained from the hospital database of all head and neck cancer patients from 2018-to 2020. Head and neck cancer patients were compared between 2018-2020 based on outpatients, inpatients, and treatment using the Wilcoxon test to analyze the association between variables. There was a significant decrease in the number of patients and treatment in Hasan Sadikin General Hospital during the pandemic. This study showed a significant decline in patients, treatments, and procedures during the head and neck cancer pandemic. During this crisis and uncertainty, extraordinary measures must ensure the best treatment possible for oncological care. Patients must be transferred to another health facility hospital. The screening of coronavirus disease 2019 must be implemented for every patient to ensure the trust and safety of the patients.

Keywords: COVID-19, Cancer, Head and neck, Naso pharyngeal carcinoma.

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INTRODUCTION

There was an outbreak of coronavirus in Wuhan, Hubei Province, China, in December 2019, which was then declared by the World Health Organization (WHO) as a Global Pandemic. The disease was named coronavirus disease 19 (COVID-19) as the causative agent of the disease is a novel type of coronavirus. Since then, various efforts have been gathered to deal with the pandemic. The Indonesian government also declared in March 2020 that COVID-19 had become a Public Health Emergency. The emergency measures taken by the Indonesian government included the appointment of general hospitals as referral hospitals for COVID-19 and the decision to do a lockdown in early March^[1,2].

The mortality and morbidity of COVID-19 have been linked to the elderly population and patients with comorbidities. The immediate nature of the COVID-19 spread has limited medical care capacity and has also changed the perspective in regulation policy for cancer patients. The number of COVID-19 in cancer patients is relatively higher than those of the general population in China. As a result, cancer patients were more likely to be infected with higher risks of having clinical conditions requiring intensive care treatment. The risk of contracting COVID-19 in cancer patients is caused daily.

Treatments and examinations at the hospital. Moreover, chemotherapy and radiotherapy received by the patients also suppressed and compromised the immune system resulting in increased vulnerability to infection^[3].

The extreme pressure faced by the Indonesian healthcare system due to the COVID-19 pandemic necessitated the adjustment of health care policies. The adjustments included the curtailment of ambulatory visits, wards and operating rooms are emptied for emergency services. Patients were advised to stay in their homes and seek medical help by telemedicine, except for emergency conditions. The adjustment above is significant for otorhinolaryngologists as they have an increased risk of COVID-19 due to virus particles in the upper airway.

Head and neck cancer (HNC) accounted for approximately 900.000 cases, with high mortality rates in developing countries and sixth-highest cancer worldwide. In Indonesia, nasopharyngeal carcinoma was ranked 5th as the most common malignancy and one of the highest new carcinoma cases in 2020.^[4,5] HNC represented a distinct group of cancers originating from the upper aerodigestive tract, lip and oral cavity, sino nasal tract, naso pharynx, oropharynx,

and larynx^[6,7]. Most of the treatments for HNC patients are centered at the tertiary and teaching hospitals, with fewer cases being treated at secondary hospitals due to the facilities offered at the tertiary and teaching hospitals. The main treatment options for HNC patients consisted of surgery, radiation therapy, chemotherapy, targeted therapy, or a combination field^[8].

This study identified the prevalence of HNC patients in the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Department of Hasan Sadikin General Hospital, Indonesia, before and during the COVID-19 pandemic.

MATERIALS AND METHODS

The research was investigated in August 2021, using data from before the pandemic in 2018 and 2019 until 2020. The design of this study was cross-sectional analytic. The study population was all the HNC patients admitted to the inpatient ward and outpatient clinic. Data of the research subjects were obtained from the hospital database from 2018 to 2020. The method of total sampling was used for this study. The Universitas Padjadjaran Ethical Committee approved this study.

The samples were all the subjects with complete medical records. They encompassed all the variables analyzed, such as a history of hospital admission, working diagnosis, and therapy/procedure given to the patients. COVID-19 in this study is defined as the year 2020. The study compared the year before COVID-19, which was 2018-to 2019, and during COVID-19 was 2020. The comparison was the total of patients and treatment/procedure for patients before and during COVID-19.

The statistical analyses were done using SPSS 19. These data were tested for normality of distribution and then analyzed according to the result of the normality test. In addition, numerical data in outpatient and inpatient were analyzed using paired T-test if typically distributed data and a Wilcoxon test if not normally

distributed data. The significance value is the p-value <0.05.

According to the anatomical site, HNC was grouped based on clinical diagnoses, such as an oral cavity, Sino nasal, naso pharynx, oropharynx, hypo pharynx, larynx, parotid gland, thyroid gland, cervical and non-Hodgkin malignant lymphoma cases in head and neck were also included.

RESULTS

From 2018 to 2020, there were 17,956 patients, of which 1,620 were inpatient hospital ward patients. The total distribution of HNC patients each year is presented in Figure 1. Based on Figure 1, there was a significant decrease of 34.92 % outpatient visits, 49.58% inpatient admission, and 25.40% treatment/procedure in 2020 compared to 2019-2018. In addition, there was a significant decrease of 34.54% outpatient visits, 57.99% inpatient admission, and 25.53% treatment/procedure in 2020.

Figure 1: Outpatient and Inpatient Wards of HNC from 2018 to 2020



Figure 2: Head and Neck Cancer in Outpatient Clinic from 2018 to 2020

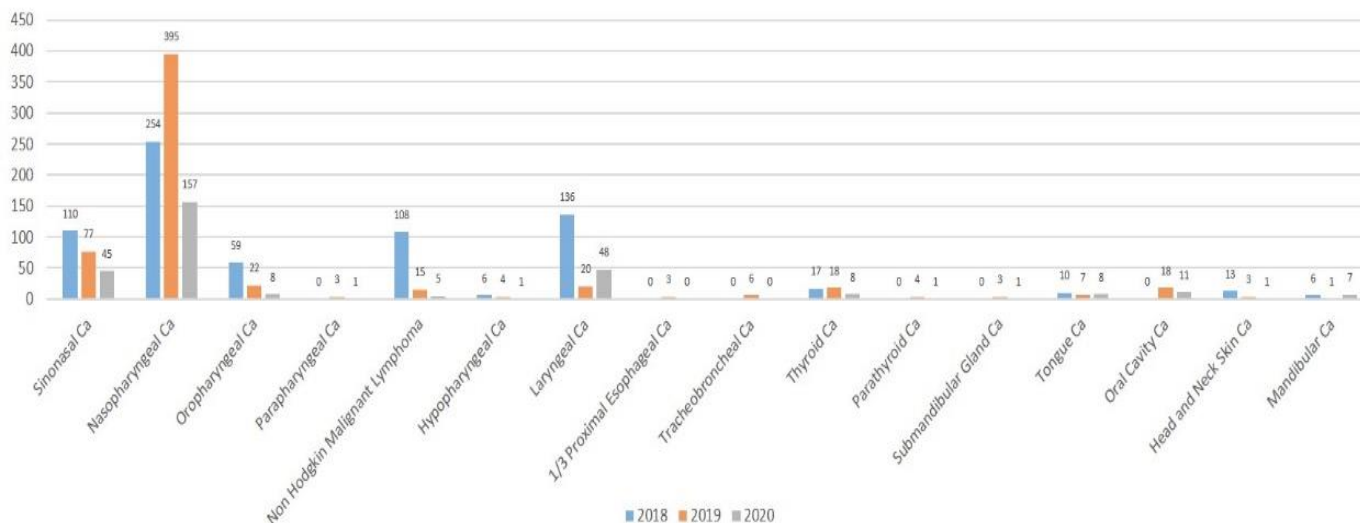
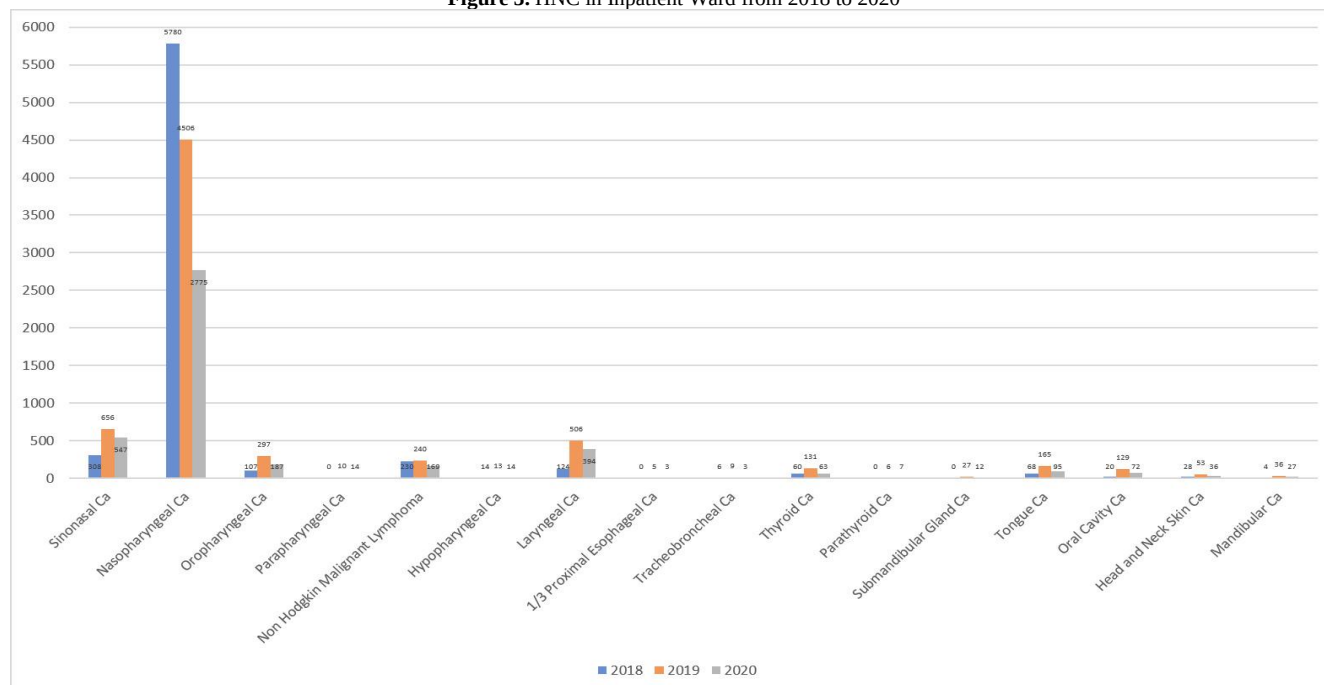
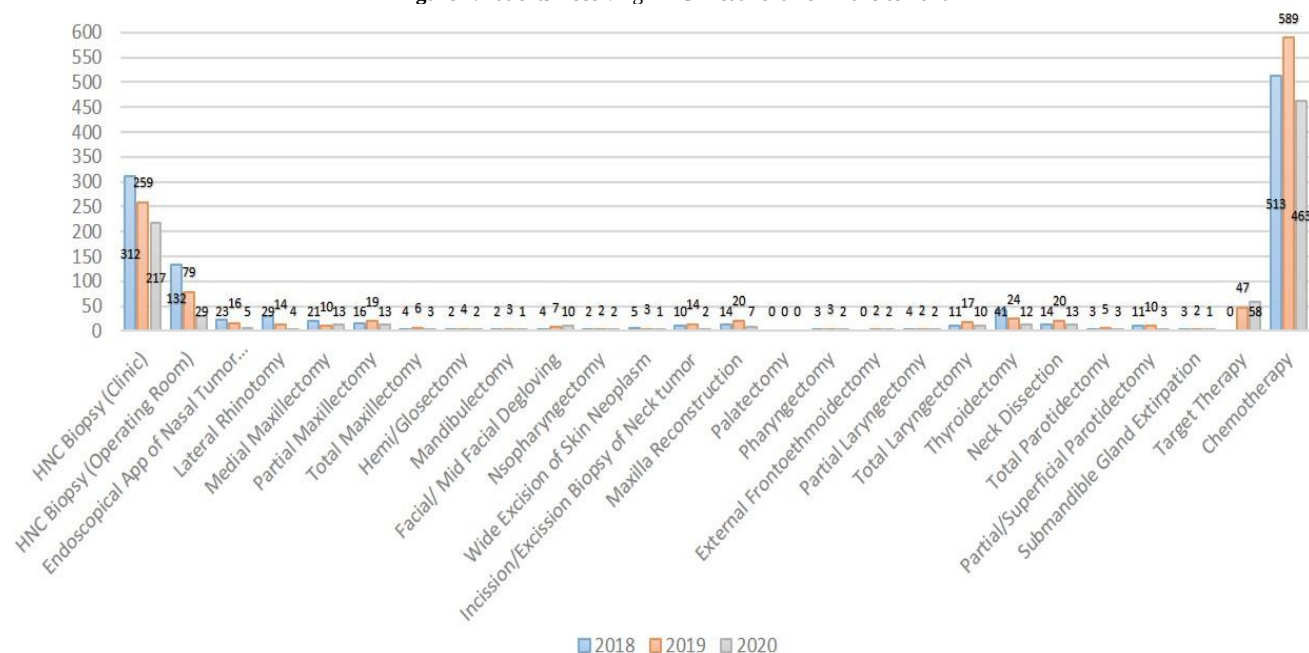


Figure 3. HNC in Inpatient Ward from 2018 to 2020**Figure 4.** Patients Receiving HNC Treatment from 2018 to 2020

Nasopharyngeal Carcinoma was the most common HNC in both of inpatient ward (51.09%) and outpatient clinic (71.61%) of Hasan Sadikin General Hospital (Figure 2 and Figure 3), followed by Sinonasal Carcinoma (14.35% in Inpatient Ward and 8.87% in Outpatient Clinic) and Laryngeal Carcinoma (12.72 % in Inpatient Ward and 6.07 in Outpatient Clinic).

Chemotherapy (48.39%) was the most frequent treatment given to the patient from a total of 3,234 treatment/procedures (Figure 4), followed by HNC biopsy in the Outpatient Clinic (24.39%) and Operating Room (7.07%).

Table 1. Comparison between HNC between 2019 and 2020

Variable	Year		p-value
	2019	2020	
Outpatients			0.0001*
Median	45.00	32.50	
Range (min-max)	5.00-4506.00	2.00-2775.00	
Interquartile Range	230.00	156.25	
Inpatients			0.002*
Median	7.00	5.00	
Range (min-max)	2.00-395.00	0.00-157.00	
Interquartile Range	17.00	7.00	
Treatment / Procedure			0.001*
Median	11.00	4.00	
Range (min-max)	2.00-589.00	1.00-463.00	
Interquartile Range	17.00	11.00	

*Statistically significant result

DISCUSSION

This study analyzes a total of 17,956 patients, 1,620 of whom are patients from the inpatient ward and 3,234 cancer treatment. According to Global Cancer Observatory, the incidence of HNC is increasing by 30%, or approximately 1,08 million new cases annually by 2030^[4,5]. However, in this study, we found that the number of patients decreased significantly in 2020, the effect of COVID-19.

The global pandemic carried new challenges to various nations' healthcare systems and public health. The causative agent of COVID-19, known as novel coronavirus 2019 (nCoV19) and currently known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV2), is highly contagious. Patients who suffered from immunocompromising diseases, such as cancer showed an increased mortality risk and were advised to stay at home while postponing treatments. The COVID-19 pandemic prompted the necessity to modify treatments, hospital visits, and policies in healthcare systems. Many patients are worried about their health to do therapy during this pandemic. Delays in adjuvant head and neck treatment can decrease disease control, consequently reducing the possibility of obtaining the best outcome and survival; according to Ang et al., HNC patients diagnosed at different stages will affect their treatment field^[8].

There was a significant decrease in outpatients during COVID-19. The hospital was also appointed as one of the referral hospitals for COVID-19, which resulted in the policy limiting the number of non-emergency patients to provide more space for COVID-19 patients. Nevertheless, many cancer patients were concerned regarding their cancer treatment; the increased risk of COVID-19 infection. A study from Jodee et al. about the impact of the COVID-19 pandemic on cancer treatment based on the patients' perspectives reported that 47% of patients were concerned about being infected with SARS-CoV2. Patients undergoing therapy are more concerned than those who come for evaluation. Patients with incurable diseases were more concerned than curable or cured diseases^[9].

According to this study, treatments and procedures done in 2020 have decreased to 25.53% and 25.40% compared to 2018 and 2019. Jindal et al. stated that at this time of uncertainty, as the world is fighting COVID-19, oncologists had to provide appropriate care to these patients. They must weigh the risk and benefits of giving treatments and the chances of getting them infected with COVID-19. Cancer patients are immunocompromised, and there is a high risk of exposure during visits to the hospital; the outcome can be fatal. As a result, there have been changes in treatment regarding oncological care, including adjustment, delay, and discontinuation of treatment. Due to the large number of patients and medical personnel infected with COVID-19, there is a policy to postpone all surgery except for

emergencies. This COVID-19 outbreak posed a significant risk for patients with cancer as they were unable to receive necessary medical services^[10,11].

Chemotherapy was the frequent treatment option in this study (48.76 %). According to Lo Nigro et al., most HNC patients presented with stages III and IV. These patients require multimodality treatment, and chemotherapy is one of the standard approaches besides radiotherapy. Chemotherapy remained to be the standard therapeutic option for recurrent/metastatic disease. COVID-19 disease has an impact on all organs. Therefore, chemoradiation therapy for cancer patients with COVID-19 should be evaluated to reduce the risk of further damage. Individual considerations should be made for the best treatment plan^[11]. The possibility of infection with COVID-19 for patients and health care workers, quality of life, prognosis, comorbidities, and the rate of acute complications are the factors that should be considered in the treatment field^[12,13].

A significant dilemma for oncologists is to delay chemotherapy treatment or to continue the treatment who are currently on chemotherapy. As per the study by Liang et al., 1% of 1590 COVID-19 cases had a history of cancer. Cancer patients had a higher risk of severe illness than non-cancer patients (39% vs. 8%). Patients who had undergone chemotherapy were more to higher morbidity (75% vs. 43%). Patients who have undergone treatment within the previous one month have a higher risk of clinically severe disease. Liang et al. suggested postponed treatment for stable cancer patients in pandemic regions. Zhang et al. concluded that chemotherapy should be continued. Patients with metastatic disease who will or are undergoing chemotherapy should be aware of the benefits of therapy, the progressivity of cancer, performance status, and severity of COVID-19. In addition, treatment delay can worsen patients' performance status with advanced disease. Examination to prevent transmission of COVID-19 disease and to weigh the risk and benefits should be considered before administering treatment and procedure to the patient field^[14].

The predominant HNC anatomic tumor site was nasopharyngeal carcinoma in the inpatient ward (51.09%) and outpatient clinic (71.61%) of Hasan Sadikin General Hospital, followed by Sinonasal Carcinoma (14.35% in the Inpatient Ward and 8.87% in Outpatient Clinic) and Laryngeal Carcinoma (12.72 % in Inpatient Ward and 6.07 in Outpatient Clinic). It is similar to research by Nathania et al., which stated nasopharyngeal carcinoma was the highest incidence. Mehanna and Hashibe stated that the high prevalence of HNC, especially nasopharyngeal carcinoma in Southeast Asia, is associated with habitual consuming carcinogens and tobacco smoking. Risk factors include smoking, diet, exposure to a carcinogen, genetics, food preservative, oral hygiene, mosquito

burnt coils, and alcohol consumption. The prevalence of NPC is the fifth highest prevalence of all malignancies in Indonesia, and the figure reaches 6 out of 100,000 population per year. In Indonesia, NPC was ranked fifth in the number of new cancer cases in 2020, according to Globocan.^[15,16]

There were several limitations in this study. First, this research had no extended period to review the impact of COVID-19 on HNC. Second, this study only compared the annual data instead of monthly data, which could not capture the impacts of the monthly renewal of government policy for COVID-19. Third, the study was only taken in a single-center, so it could not generalize the impact of COVID-19 on the health care system. It will be necessary to compare the conditions of different hospitals or even different countries to capture the impacts of COVID-19 pandemics on the oncological care of HNC from various settings and perspectives.

CONCLUSIONS

COVID-19 pandemics have been a unique challenge due to the significant changes in the health facilities and policy, which led to a significant decline in inpatient visits, delayed treatments, and procedures in the setting of HNC care. Cancer is challenging in the COVID-19 era in all aspects of patient care. Furthermore, the efforts and prevention of the COVID-19 pandemic have postponed the proper diagnosis or treatment. Therefore, the management of HNC patients in the pandemic era is more challenging due to the limitations of the health facility. HNC survivors may be impacted for quality of life and the detection of disease recurrence.

The patients need to be transferred to another health facility, not a referral hospital for COVID-19. Furthermore, additional efforts were needed for the safety of COVID-19 screening for every patient. During this crisis and uncertainty, extraordinary measures must be taken to ensure the best treatment possible and build trust and confidence for the patients and health care workers in oncological care. Prompt and effective treatment is needed for HNC patients. The risk of infection complications for the patient should also be considered upon devising a treatment plan.

Therefore, we should have new treatment strategies for HNC and consider new guidelines for the future of the COVID-19 pandemic.

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DECLARATION

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Ethical Approval Universitas Padjadjaran Ethical Committee approved this research.

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