Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the editor

Impact of the COVID-19 pandemic in the head and neck cancer treatment in the Brazil

Letter to the Editor

The COVID-19 pandemic represents a serious threat to the public health. It presents a high rate of contagion and transmissibility through contaminated droplets from oropharynx secretions or contaminated surfaces [1,2]. Because of viral infection and replication in respiratory epithelial cells, the disease can lead to severe acute respiratory syndrome and death [3]. There is no vaccine or approved drug therapy for the prevention and treatment for COVID-19. Thus, in order to restrict the infection spreading, billions of people around the world were/are under quarantine, isolation or social distancing to contain it and prevent the collapse of the health system [1,4]. As a result of these public health measures, only essential services were maintained.

All these restrictive measures induced individuals to experience feelings of anxiety, anger, confusion, and post-traumatic symptoms, in addition to the fear of contagion and even death by the virus [4]. Despite hospitals are essential services, during the pandemic, outpatient consultations and non-urgent surgeries were suspended in order to reduce hospitalizations and the risk of contagion [5]. Such actions also affected patients with chronic diseases, which may have worsened without periodic follow up. In addition, this context has caused a decrease in the number of consultations [6], resulting in delay in the diagnosis of several chronic diseases [7], including head and neck cancer (HNC) [8].

HNC represents the sixth most common cancer worldwide, accounting for 6% of all solid tumors [9]. The treatment depends on the site, clinical stage, and histopathological criteria. Overall, the primary treatment for the most HNC is surgery associated with adjuvant radiation or chemoradiation therapy [10]. Head and neck surgeons present a high risk of COVID-19 contamination because of intimate contact with nasal, oral and oropharynx mucosa [11]. Thereby, during the peak of the pandemic the World Health Organization (WHO) ratified by most medical societies has taken steps to reduce the risk of contagion by the population and health professionals, leading to the created several protocols [12] with main focus in severe cases, emergencies and canceling elective surgical procedures [13]. Thus, we evaluated preliminary the impact of the COVID-19 pandemic in HNC treatment, comparing the number of surgeries and radiotherapy and chemotherapy procedures performed during the pre-pandemic and pandemic periods in the Brazil.

For this, the data of the public archives of the Hospital Information System of the Brazil's Unified Health System (SIH/SUS) and Outpatient Information System (SUS-SAI/SUS) from Department of Informatics of the SUS (http://www2.datasus.gov.br) were used. With the confirmation of the first case in February and the progressive increase until July, which reached the mark of 90 thousand cases (https://www.sanarmed.com/linha-do-tempo-do-coronavirus-no-brasil), we compared mean number of HNC surgeries and number of radiotherapy and chemotherapy procedures carried out during pre-pandemic (From the March to July 2015–2019) and pandemic period (From the March to July 2020) in the five geographic regions of Brazil.

Between 2015 and 2019, from the March to July, the mean number of surgeries for HNC was 5410. In 2020, during the same period, there were 3522 surgeries, representing a 35% decrease during the pandemic period. The greatest decrease was observed in the Northern region (60.7%). In the other regions, the decrease ranged from 30.7% to 38.1%. Table 1 shows the detailed data. Concomitantly, the number of radiotherapy and chemotherapy procedures increased when comparing the pre- and pandemic periods. Between 2015 and 2019, from the March to July, the mean number of radiotherapy and chemotherapy procedures was 9893. In 2020, during the same period, there were 14,919 procedures, representing a 50.8% increase during the pandemic period. The highest increase was observed in the Northeast region (75.1%). In the remain regions, the increase ranged from 41.9% to 61.2% (Table 2).

The surgical resection is the basis for the treatment of oral cancer, the most common site for HNC, both in early and advanced clinical stages, being associated with a significant improvement in patient survival [14,15]. Patients with HNC there is a significantly increased risk of death when surgery is performed more than 67 days after the diagnosis [16]. However, the fear of patients to infect by virus [6,8] and the restrictive measures [6] disrupted the cancer surgeries worldwide [17]. Furthermore, the increase in the number radiotherapy and chemotherapy procedures for HNC was observed. Radiotherapy is commonly

Table 1
Difference between the mean number of head and neck cancer surgeries in the pre- and during the COVID-19 pandemic according to Brazilian geographic regions.

Brazilian regions	March to July							
	2015	2016	2017	2018	2019	Mean (2015–2019)	2020	Difference between Pre- and COVID pandemic period
North	151	155	246	206	159	183.4	72	(−) 60.7%
Northeast	1399	1417	1567	1574	1442	1479.8	916	(−) 38.1%
Southeast	2273	2089	2228	2237	2206	2206.6	1529	(−) 30.7%
Sothern	1072	990	1072	1148	1164	1089.2	712	(−) 34.6%
Midwest	468	447	441	449	451	451.2	293	(−) 35.0%
Total	5363	5098	5554	5614	5422	5410.2	3522	(−) 35.0%

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Table 2
Difference between the mean number of radiotherapy and chemotherapy procedures in the pre- and COVID-19 pandemic period according to Brazilian geographic regions.

Brazilian regions	March to July							
	2015	2016	2017	2018	2019	Mean (2015–2019)	2020	Difference between Pre- and COVID pandemic period
North	309	304	344	303	440	340.0	548	(+) 61.2%
Northeast	1794	1566	1749	1753	2396	1851.6	3243	(+) 75.1%
Southeast	5229	4791	4796	4747	5851	5082.8	7211	(+) 41.9%
Southern	2074	1782	1957	1746	2660	2043.8	3048	(+) 49.2%
Midwest	600	511	647	538	580	575.2	869	(+) 51.1%
Total	10,006	8954	9493	9087	11,927	9893.4	14,919	(+) 50.8%

used for HNC, mainly as adjuvant therapy to surgery. Single-modality treatment with radiotherapy may be recommended for patients with early-stage disease [18]. However, in developing countries like Brazil, most cases are diagnosed at advanced clinical stage [19]. Although the chemotherapy alone is not considered a curative modality for HNC, chemoradiotherapy is indicated especially for nasopharyngeal cancer. Furthermore, radiotherapy and chemotherapy, combined or isolated, are not the primary treatment for most HNC, these therapies cause significant oral side effects, such as oral mucositis, xerostomia, candidiasis, and osteoradionecrosis [18,20].

In summary, during the peak of COVID-19 pandemic, the data demonstrate a probable change in the HNC treatment protocol in Brazil. Further studies are needed to assess the impact of this finding on prognosis. A strong second COVID-19 wave can further aggravate this scenario.

Authors contributions

A.J. Martelli contributed to conception, design, data acquisition and interpretation, drafted and critically revised the manuscript. R.A. Machado, W.M. Pereira, D.M.M. Silveira, D.E.C. Perez, H. Martelli-Júnior contributed to conception, design, data acquisition and interpretation and critically revised the manuscript. All authors gave their final approval and agree to be accountable for all aspects of the work.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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