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Covid-19 negatively impacted on small oncology surgery but none on major procedures: Regional experience

ABSTRACT

Aim: To understand the impact of COVID pandemic on the activity and patients’ care of the Head and Neck regional Unit, temporary moved in a COVID-free hospital.

Methods: We retrospectively analyzed the yearly activity of the “Head & Neck Cancer Unit” at the Azienda Ospedali Riuniti Marche Nord (Italy) during 2020 (COVID-19 pandemic) and we compared it with the one performed in 2019. Statistical analyses were performed using Chi-square.

Results: No significant differences were observed comparing the total number of patients treated for H&N squamous cell carcinoma (SCC) in 2019 with the ones in 2020. Moreover, no differences were identified in term of cancer stage at the moment of the surgery between 2019 and 2020. On the contrary, a significant reduction in the number of surgical procedures carried out for thyroid (p < 0.05) and skin (p < 0.001) malignancies was identified.

Conclusions: Despite Covid-19 limitations, our institution was able to preserve the number of major oncologic procedures without negative impact on patients’ care. We believe that the creation of specific COVID-free hospital can be the key preserve quality of care in epidemic emergency.
(9) surgery and adjuvant radio-chemotherapy, 1.8% (1) exclusive radiotherapy, 23.2% (13) radio-chemotherapy and 3.6% (2) radiotherapy or palliative chemotherapy (Fig. 2). When comparing 2020 data with those of 2019, we did not record a significant difference in the treatments performed.

38 surgical procedures for H&N cancer were performed in 2019 and 40 in 2020. Thyroid surgery for cancer was statistically significant reduced (25% less) comparing 2020 with 2019 (p < 0.05). Same statistically significant differences were observed looking at surgical procedures carried out for cutaneous malignancies (p < 0.001). In 2020, these procedures were reduced of 41% compared with 2019 (69 vs 117) (Fig. 3).

AORMN includes three hospitals that were adapted to manage COVID pandemic without excessively reduction of medical and surgical activities. Two hospitals were exclusively dedicated to patients with COVID-19 and one devoted to continue standard medical and surgical treatment including emergencies (COVID-free).

Despite we observed a consistent reduction of surgery for thyroid [11] and skin cancers [12], maybe related to the poor symptomatology and symptoms underestimation by patients, the subdivision of the activity in three different hospital allowed us to treat head and neck cancers without any negative impact on patients care. In the COVID-free hospital, the procedure for admitting patients were standardized and extremely restricted both for patients and healthcare professional [13]. This rigorous method allowed to manage the treatment of head and neck malignancies exactly as in non-pandemic era [12].

During COVID-19 pandemic, the management of patients with cancer has becoming more challenging; in fact, they represent a high-risk group because more vulnerable to the infections due to their underlying disease and their immunosuppressed state, which implies a greater

**Fig. 1.** A) Comparison between patients treated for H&N squamous cell carcinoma in 2019 and 2020. B) Analysis of H&N squamous cell carcinomas stage of patients treated in 2019 and 2020.

**Fig. 2.** A) Comparison among type of treatments performed in 2019 and 2020. B) Analysis of palliative and maintenance therapy performed in 2019 and 2020.
risk of serious bacterial/viral complications during and post-surgery [14]. Sars-CoV2 can be potentially fatal in these patients, so any type of methods to leave the virus out have to be used. Based on our experience a complete separation of the activities can be a successful way to protect these patients.

We think that due to the increased risk of new-pandemic, the healthcare system should be organized to promptly divide clinical and surgical activity to avoid delay in the treatment of the cancer; in fact, a tardive treatment could expose patients to high risk of death, another long-term – despite underestimated – effect of COVID-19 pandemic.

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Author contribution

LD: clinical care, data analyses, manuscript idea, writing and final approval; GL: clinical care, data acquisition and analyses, manuscript idea, writing and final approval; CB, FB, FM, EM, AR, LG, AP, AS, GL, BR, AS and PA : clinical care, data acquisition, manuscript idea, writing and final approval; MC: clinical care and organization, manuscript writing and final approval. AE: clinical care, data acquisition, manuscript idea, writing and final approval; ADS: study design and supervision, data analysis, definition of conclusion writing and final approval.

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.

References

[1] Armocida B, Formenti B, Usai S, Palestre F, Misoneri E. The Italian health system and the COVID-19 challenge. Lancet Public Health 2020;5(6):e293. https://doi.org/10.1016/S2468-2667(20)30074-8.

[2] Jensen AR, Nellemann HM, Overgaard J. Tumor progression in waiting time for radiotherapy in head and neck cancer. Radiother Oncol 2007;84(1):5–10.

[3] Xing Y, Zhang J, Lin H, Gold KA, Sturgis EM, Garden AS, et al. Relation between the level of lymph node metastasis and survival in locally advanced head and neck squamous cell carcinoma. Cancer 2016;122(4):534–45.

[4] Di Stadio A, Gradoni F, Cingolani C, Battiini E, Pandolfini M, Milazzo E, et al. Bjork Flap Tracheostomy for COVID-19 Pneumonia With Massive Thyroid Struma: A Stable Airway to Expedite Ventilator Weaning. Ear Nose Throat J 2020. 1455613206891.

[5] Graboyes EM, Kompelli AR, Neskey DM, Brennan E, Nguyen S, Sterba KR, et al. Association of treatment delays with survival for patients with head and neck cancer: a systematic review. JAMA Otolaryngol Head Neck Surg 2019;145(2):166. https://doi.org/10.1001/jamaoto.2018.2716.

[6] D’Ascanio L, Pandolfini M, Cingolani C, Latini G, Giardini D. Letter to the editor regarding “How to avoid nosocomial spread during tracheostomy for Covid-19 patients”. Head Neck 2020;42(9):2768–9.

[7] D’Ascanio L, Pandolfini M, Capalbo M, Tempesta M. Minimizing Healthcare Worker Contamination Risk During Tracheostomy. J Am Coll Surg 2020;231(2):299–300.

[8] D’Ascanio L, Latini G, Pandolfini M, Giardini D. Corona-steps for tracheostomy in COVID-19 patients: A staff-safe method for airway management. Oral Oncol 2020;106:104731. https://doi.org/10.1016/j.oraloncology.2020.104731.

[9] Prachand VN, Milner R, Angelos P, Posner MC, Fung JJ, Agraval N, et al. Medically necessary, time-sensitive procedures: scoring system to ethically and efficiently manage resource scarcity and provider risk during the COVID-19 Pandemic. J Am Coll Surg 2020;231(2):281–4.

[10] De Luca P, Scarpa A, Ralli M, De Vincentis M, Carrasso E, Chiarella G, et al. Nasal, pharyngeal, and laryngeal endoscopy procedures during COVID-19 pandemic: available recommendations from national and international societies. Eur Arch Otorhinolaryngol 2020;277(7):2151–3.

[11] van Gerven M, Alpert N, Sinclair C, Menden D, Etti A, Essing non-aggressiveness of untreated, local and regional, papillary thyroid cancer. Oral Oncol 2020;105:104674. https://doi.org/10.1016/j.oraloncology.2020.104674.

[12] Maranzano M, D’Ascanio L, Ricci G, Omer H, Di Stadio A. Misinterpretation of head and neck masses can delay the correct diagnosis. A two-step demolitive-reconstruction surgery for saving patient’s life. Oral Oncol 2021;105197. https://doi.org/10.1016/j.oraloncology.2021.105197.

[13] Riva G, Pizzo C, Fasone E, Pecorari G. Head and neck cancer surgery in COVID-19 pandemic in Northern Italy. Oral Oncol 2020;107:104835. https://doi.org/10.1016/j.oraloncology.2020.104835.

[14] Perri F, Isona F, Longo F, Della Vittoria Scarpati G, De Angelis C, Ottaviano A, et al. Immune response against head and neck cancer: biological mechanisms and implication on therapy. TransOncol 2020;13(2):262–74.

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Fig. 3. Surgical procedures performed for malignancies of the H&N in 2019 and 2020 (*: p < 0.05; **: p < 0.001).