

## Chemotherapy in head and neck cancer- A review

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### Abstract

Chemotherapy is progressively being utilized for the radical treatment of propelled head and neck malignant growths. Chemotherapy offers unassuming advantages in the metastatic. Platinum containing operators are the most dynamic medications and structure the pillar of most chemotherapy plans. Lately, taxanes have indicated action in head and neck malignant growths and are joined into neo-adjuvant and concomitant chemotherapy regimens. Directed operators and epidermal development factor receptor inhibitors, like cetuximab, specifically, have demonstrated an advantage in the metastatic and the concomitant setting. In this article, we will show the ways of treating with this method.

**Keywords:** Chemotherapy, Epidermal Development Growth Factor (Egfr), Radiotherapy, Platinum.

### Introduction

Medical procedure and radiotherapy are the pillars of treatment for carcinoma found in the head and neck of patients. As of late, fundamental chemotherapy has progressively been fused into the treatment plan. As a feature of the essential treatment, foundational chemotherapy can be controlled before or during (corresponding chemotherapy) radiotherapy (CRT). Unfriendly impacts will, in general, be the constraining factors.<sup>1</sup> The method of treatment for patients with carcinoma of the head and neck relies on on-site and phase of the illness, and general wellbeing status of the patient. In most instances of malignant growths, a solitary methodology treatment of medical procedure is considered. Chemotherapy was utilized before infection and with the removable infection for organ safeguarding and better fix rates. Fundamental chemotherapy was normally controlled with the palliative expectation to patients with cutting edge arrange IV illness, M1 malignant growths, or repetitive infection past rescue nearby treatment.

The treatment in privately propelled head and neck tumors has developed since the presentation of consolidated methodology.<sup>2</sup> At first, a solitary chemotherapeutic operator, for example, methotrexate or cisplatin was endorsed before nearby authoritative treatment. From that point onward, a blend of cisplatin and bleomycin was presented, managed as a solitary course previously neighborhood treatment. In 1980, the blend of cisplatin and consistent implantation (96 – 120 hours) of 5-fluorouracil (5FU) was presented, which has become a broadly utilized mixed chemotherapy in patients with squamous cell carcinoma of the head and neck. Likewise, at around a similar time, the idea of simultaneous chemotherapy with radiation treatment was returned to, with the presentation of cisplatin given simultaneously with radiation treatment, as the essential treatment for patients with inoperable what's more or unresectable head and neck cancers.<sup>3</sup> The personal satisfaction has increased for a significant number of these patients, particularly when the larynx and voice work is protected in malignant growths of

the larynx or hypopharynx. Improvement in the general endurance was shown by imminent randomized stage III investigations and meta-examinations, and all the more altogether, by populace wide insights. It isn't commonly perceived that the best decrease in death rates, in the period 1990 to 1997, has happened in patients with head and neck diseases. This decay was noted for patients both above and underneath 65 years old, for the two people, and the two blacks and whites.<sup>4</sup>

### Types of chemotherapy

#### Induction chemotherapy

The job of induction chemotherapy (ICT) in privately progressed squamous cell carcinoma of the head and neck (LA SCCHN) has been vigorously researched, yet away from for the ideal utilization of ICT outside of situations where organ conservation is an essential objective still can't seem to be characterized. Accessible information has been essentially uncertain concerning whether ICT gives by and large unrivaled advantages versus the standard of care (simultaneous chemoradiotherapy), aside from in the larynx protection setting,<sup>5</sup> because an authoritative stage III preliminary still can't seem to be finished in different settings. Besides, it has taken >2 decades to land at an accord, proof-based ICT routine of decision: TPF [docetaxel, cisplatin, and fluorouracil (5-FU)]. TPF is currently acknowledged to be better than PF (cisplatin in addition to 5-FU) in different stage III preliminaries and a meta-investigation.<sup>6-8</sup>

### Newer agents

Presently that the nearby territorial control advantage of the expansion of cisplatin to radiation has been set up in adjuvant setting just as an inconclusive setting, examinations began to concentrate on understanding the ideal dosing and calendar of cisplatin.<sup>9-11</sup>

To decide the ideal total dosing, Trojan et al. performed meta-examination from 11 planned randomized preliminaries, and 7 non-randomized preliminaries.<sup>12</sup> Even

though the advantage signal was boisterous, when the investigation was restricted to the 6 examinations with chemoradiotherapy as a conclusive treatment, a critical improvement in OS was related to expanding total cisplatin dosages. A 2.2% OS advantage between the chemoradiotherapy gathering and the radiotherapy alone gathering was watched for each 10 mg increment in the total cisplatin portion.<sup>13</sup> Since the regular exclusion of the third portion of cisplatin because of danger, it is commonly acknowledged that a combined portion of cisplatin more noteworthy or equivalent to 200 mg/m<sup>2</sup> presents an endurance advantage. Dosing plan improvements have taken a gander at week after week cisplatin dosing extending from 30 to 40 mg/m<sup>2</sup> or day by day organization from 5 to 7 mg/m<sup>2</sup>. A week after week dosing has picked up ubiquity contrasted with the conventional portion of 100 mg/m<sup>2</sup> at regular intervals.<sup>13-15</sup> There are two between related objectives behind this move: one is to diminish harmfulness, and two is to improve treatment consistency to accomplish a higher aggregate cisplatin portion and, thus, the viability of simultaneous chemoradiotherapy.<sup>16-18</sup> Curiously, a displaying study by Marcu et al. shown that day by day organization dosing of cisplatin with radiotherapy is more productive than a week by week cisplatin, which can expand tumor control adequacy from 6% to 35%.<sup>19</sup> This work didn't contrast like clockwork with week after week dosing.<sup>20-22</sup>

## Conclusion

Expanding clinical proof demonstrating the advantages in the neo-adjuvant, concomitant, and the adjuvant (postoperative) setting, though at the expense of higher treatment. More up to date radiation systems, similar to force adjusted radiotherapy, can lessen the harmfulness, by diminishing the effect on the skin.

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## Conflict of Interest

None.

## References

- Bhide SA. Advances in chemotherapy for head and neck cancer. *Oral Oncol* 2010;46:4368.
- Al-Sarraf M. Head and neck cancer: Chemotherapy concepts. *Semin Oncol* 1988;15:70-85.
- Al-Sarraf M. Head and neck cancer: Present status and future prospects of adjuvant chemotherapy. *Cancer Invest* 1995;13:41-53.
- Ries LA, Wingo PA, Miller DS, Howe HL, Weir HK, Rosenberg HM, et al. The annual report to the nation on the status of cancer, 1973-1997, with a special section on colorectal cancer. *Cancer* 2000;88:2398-424.
- Monnerat C, Faivre S, Temam S, Bourhis J, Raymond E. End points for new agents in induction chemotherapy for locally advanced head and neck cancers. *Ann Oncol* 2002;13:995-1006.
- Lefebvre JL, Chevalier D, Lubinski B, Kirkpatrick A, Collette L, Salmoud T, et al. Larynx preservation in pyriform sinus cancer: Preliminary results of a European Organization for Research and Treatment of Cancer phase III trial. EORTC Head and Neck Cancer Cooperative Group. *J Natl Cancer Inst* 1996;88:890-9.
- Paccagnella A, Orlando A, Marchiori C, Zorat PL, Cavaniglia G, Sileni VC, et al. Phase III trial of initial chemotherapy in stage III or IV head and neck cancers: A study by the Gruppo di Studio sui Tumori della Testa e del Collo. *J Natl Cancer Inst* 1994;86:265-72.
- Robbins KT, Medina JE, Wolfe GT, Levine PA, Sessions RB, Pruet CW et al. Standardizing neck dissection terminology. Official report of the Academy's Committee for Head and Neck Surgery and Oncology. *Arch Otolaryngol Head Neck Surg* 1991;117: 601-5.
- Zorat PL, Paccagnella A, Cavaniglia G, Loreggian L, Gava A, Mione CA, et al. Randomized phase III trial of neoadjuvant chemotherapy in head and neck cancer: 10-year follow-up. *J Natl Cancer* 2004;96:1714-7.
- Hitt R, López-Pousa A, Martínez-Trufero J, Escrig V, Carles J, Rizo A, et al. Phase III study comparing cisplatin plus fluorouracil to paclitaxel, cisplatin, and fluorouracil induction chemotherapy followed by chemoradiotherapy in locally advanced head and neck cancer. *J Clin Oncol* 2005;23:8636-45.
- Induction chemotherapy plus radiation compared with surgery plus radiation in patients with advanced laryngeal cancer. The Department of Veterans Affairs Laryngeal Cancer Study Group. *N Engl J Med* 1991;324:1685-90.
- Induction chemotherapy plus radiation compared with surgery plus radiation in patients with advanced laryngeal cancer. The Department of Veterans Affairs Laryngeal Cancer Study Group. *N Engl J Med* 1991;324:1685-90.
- Lefebvre JL. Laryngeal preservation in head and neck cancer: Multidisciplinary approach. *Lancet Oncol* 2006;7:747-55.
- Wilson GD, Bentzen SM, Harari PM. Biologic basis for combining drugs with radiation. *Semin Radiat Oncol* 2006;16:2-9.
- Adelstein DJ, Li Y, Adams GL, Wagner H Jr, Kish JA, Ensley JF, et al. An intergroup phase III comparison of standard radiation therapy and two schedules of concurrent chemoradiotherapy in patients with unresectable squamous cell head and neck cancer. *J Clin Oncol* 2003;21:92-8.
- Forastiere AA, Goepfert H, Maor M, Pajak TF, Weber R, Morrison W, et al. Concurrent chemotherapy and radiotherapy for organ preservation in advanced laryngeal cancer. *N Engl J Med* 2003;349:2091-8.
- Agarwala SS, Cano E, Heron DE, Johnson J, Myers E, Sandulache V, et al. Long-term outcomes with concurrent carboplatin, paclitaxel and radiation therapy for locally advanced, inoperable head and neck cancer. *Ann Oncol* 2007;18:1224-9.
- Suntharalingam M, Haas ML, Conley BA, Egorin MJ, Levy S, Sivasailam S, et al. The use of carboplatin and paclitaxel with daily radiotherapy in patients with locally advanced squamous cell carcinomas of the head and neck. *Int J Radiat Oncol Biol Phys* 2000;47:49-56.
- Budach V, Stuschke M, Budach W, Baumann M, Geismar D, Grabenbauer G, et al. Hyperfractionated accelerated chemoradiation with concurrent fluorouracil-mitomycin is more effective than dose-escalated hyper fractionated accelerated radiation therapy alone in locally advanced head and neck cancer: Final results of the radiotherapy cooperative clinical trials group of the German Cancer Society 95-06 Prospective Randomized Trial. *J Clin Oncol* 2005;23:1125-35.
- Ang KK, Berkey BA, Tu X, Zhang HZ, Katz R, Hammond EH, et al. Impact of epidermal growth factor receptor expression on survival and pattern of relapse in patients with advanced head and neck carcinoma. *Cancer Res* 2002;62:7350-6.

21. Bonner JA, Harari PM, Giralt J, Azarnia N, Shin DM, Cohen RB, et al. Radiotherapy plus cetuximab for squamous-cell carcinoma of the head and neck. *N Engl J Med* 2006;354:567-78.
22. Bonner JA, Harari PM, Giralt J, Cohen RB, Jones CU, Sur RK, et al. Radiotherapy plus cetuximab for locoregionally advanced head and neck cancer: 5-year survival data from a

phase 3 randomized trial, and relation between cetuximab-induced rash and survival. *Lancet Oncol* 2010;11:21-8.

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