



Continuous intra-arterial infusion chemotherapy as a palliative treatment for oral squamous cell carcinoma in octogenarian or older patients

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SUMMARY

We intend to determine the potential benefits and analyze the outcomes of regional intra-arterial infusion chemotherapy (IAIC) for the octogenarian and older patients with oral cancer. Eighteen patients with oral squamous cell carcinoma were included. They were 12 males and six females with ages ranging from 80 to 96 years. An implantable port-catheter system was used for catheterization. Using a portable pump, methotrexate was given continuously through the external carotid artery for a mean period of 5.5 days (range, 4–7 days) followed by weekly bolus of low dose (25 mg) of methotrexate until the clinical condition was stabilized. During the first week of IAIC, all tumors began to reduce in size. Of them 11 (61%) had a complete clinical response and 7 (39%) achieved a partial clinical response, after a mean follow-up period of 26 months (range, 8–72 months). The one- and three-year survival rates were 87% and 56%, respectively. There were no catheter-related complications. The side effects were mild and tolerable. IAIC might be specially indicated for oral cancer elderly with co-morbidity since a radical surgery or extensive radiotherapy can be avoided, and offers an acceptable palliative treatment in such patients.

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Introduction

With the prolongation of life expectancy, the elderly population is rapidly growing and the risk of developing cancer is progressively increasing with age.^{1–3} Although there is no clear definition of aged patients in the medical literature, the decline of physiological functions associated with aging may reduce reserve capacity and increase susceptibility to age-related diseases, leading to an affection of the prognosis in elderly oncological patients.^{2–4} Nevertheless, the effects of aging on the individual differ widely, and the presence of these changes is extremely heterogenous and divergent in the population, therefore, it is not reasonable to determine the therapeutic planning for elderly cancer patients based only on chronological landmarks.

Oral cancer most commonly affects individuals between the fifth and seventh decades of life, but their occurrence in the elderly population is not uncommon. Currently more and more elderly patients with oral cancer have been treated with a great variety of therapeutic modalities, including surgery, radiotherapy, and systemic chemotherapy or in combination. Regional intra-arterial

infusion chemotherapy (IAIC) via superselective catheterization has been used for the control of oral cancer as a palliative therapy.^{5–7} In the era of organ preservation, chemotherapy has been favored without compromising cosmetic result and organ function as compared with other treatment modalities. To our knowledge, few data in the literature are concerned with the usefulness of IAIC for elderly patients with oral cancer. In this study, we intend to determine the potential benefits and analysis of outcomes of IAIC for the octogenarian and older patients with oral cancer.

Materials and methods

Patients

Eighteen previously untreated patients with oral cancer were included in this study. They were 12 males and six females with the age ranging from 80 to 96 years. Patients with a proven histology of oral squamous cell carcinoma and a Karnofsky status >50 were enrolled into the study (Fig. 1). They were staged according to the TNM Classification of the UICC, 6th edition.⁸ All patients were informed about the investigative nature of the study and signed their written informed consent prior to the treatment. In these 18 elderly patients, 15 suffered from associated medical illnesses including diabetes mellitus, hypertension, heart failure, chronic obstructive pulmonary disease or cerebrovascular disease.

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Figure 1 A squamous cell carcinoma arising from the left buccal mucosa before treatment in patient 18.

This study was reviewed and approved by the Human Investigation Review Committee at the KMH.

Placement of the catheter

An implantable port-catheter system (Jet Port Plus Allround; PFM, Cologne, Germany) was used for catheterization. Under general anesthesia, the catheter was inserted through the superficial temporal artery and moved in a retrograde manner into the external carotid artery. The tip of the catheter was placed proximal to the branching of the tumor-feeding artery. The distal end was embedded subcutaneously along the lateral neck and connected to the port, which was implanted subcutaneously near the infraclavicular region.⁹ The same procedure could be also performed on the opposite side. According to the location of the main tumor and the expected infusion area, twelve patients were treated on one side and six on both sides, respectively (Table 1). The proper location was confirmed by patent blue V (Guerbet Co., France) infusion through the catheter. The distribution of the dye could be observed and the proposed therapeutic field for drug infusion was thus confirmed (Fig. 2).

Regimen of chemotherapeutic agents

Methotrexate 50 mg was infused continuously to the external carotid artery every 24 h using a portable pump (CADD-1; Deltec, St. Paul, MN, USA). Folinic acid 6 mg was given intramuscularly every 6 h during the period of methotrexate infusion. Methotrexate was given continuously for a median period of 6 days (range, 4–8 days) until bone marrow suppression was observed. When WBC was less than 3000/ul or platelet count reduced below 10×10^4 /ul, the regimen was then changed to a weekly bolus of low dose (25 mg) of methotrexate via the intra-arterial route at our outpatient clinic. The total administered dose of methotrexate

The other three patients were unwilling to receive conventional standard surgery. Some factors were usually taken into consideration for elderly patients who were not indicated for regular curative treatment. These factors included the oncologic conditions; the patient's general condition; the effects on quality of life; the expense, duration, tolerance, inconvenience and hospital stay of the procedure; and the average life expectancy. The demographic characteristics and the clinical features of the patients are listed in Table 1. Prior to the treatment, clinical staging was assessed by chest X-ray, computerized tomography of the head and neck, and bone scintigraphy. In addition, all patients underwent complete clinical and laboratory examinations before and after each treatment cycle.

Table 1
The demographic characteristics of elderly patients with oral cancer.

Case no.	Sex	Age (years)	Tumor location	Stage (TNM)	Tumor size (cm)	Side of infusion	Co-morbidity	MTX (mg)	Response	Follow-up (months)
1	F	83	Tongue	T3N0M0	5 × 3	Both	H/T	300	CR	27 Alive
2	M	80	Tongue	T1N0M0	1.5 × 1	Left	H/T, DM	300	CR	41 Alive
3	M	80	Tongue	T2N0M0	2 × 2	Left	H/T	350	PR	27 Alive
4	F	80	Lt buccal mucosa	T2N2M0	3 × 2	Left	COPD	300	CR	40 Dead
5	F	96	Lt buccal mucosa	T4N0M0	10 × 8	Left	DM	200	PR	8 Dead
6	M	85	Lt buccal mucosa	T4N1M0	4 × 3	Left	–	250	CR	43 Alive
7	M	80	Rt buccal mucosa	T2N0M0	3 × 3	Right	H/T	350	PR	37 Alive
8	F	90	Rt retromolar area	T4N1M0	5 × 3	Right	DM	200	CR	32 Alive
9	F	84	Rt buccal mucosa	T4N0M0	3 × 3	Right	H/T	200	PR	15 Dead
10	M	92	Lower lip	T4N0M0	4 × 3	Both	CHF DM CVD	300	CR	13 Dead
11	M	80	Rt buccal mucosa	T3N1M0	4 × 3	Right	H/T COPD DM	300	PR	9 Dead
12	M	81	Mouth floor	T2N0M0	2 × 1.5	Both	–	250	CR	39 Alive
13	F	85	Rt buccal mucosa	T2N1M0	3 × 2	Right	H/T DM	300	PR	20 Alive
14	M	81	Palate	T2N0M0	2.5 × 2	Both	H/T COPD	250	CR	20 Alive
15	M	82	Palate	T4N0M0	4 × 4	Both	DM	250	PR	10 Alive
16	M	82	Mouth floor	T4N0M0	4 × 3	Both	H/T H/T CHF COPD	300	CR	10 Alive
17	M	86	Rt lower gum	T2N0M0	2 × 1	Right	H/T	350	CR	9 Alive
18	M	80	Lt buccal mucosa	T4N0M0	4 × 3	Left	–	400	CR	72 Alive

H/T: hypertension; DM: diabetes mellitus; COPD: chronic obstructive pulmonary disease; CHF: congestive heart failure; CVD: cerebral vascular disease; CR: complete response; PR: partial response.

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