Oral tongue cancer in young patients: A matched analysis

Werner Garavello *, Roberto Spreafico, Renato Maria Gaini

Department of Otorhinolaryngology — Head and Neck Surgery, University of Milano-Bicocca, DNTB, Ospedale San Gerardo, 20052 Monza (MI), Italy

Summary   Previous studies on squamous cell carcinoma of the tongue have reported conflicting results with respect to age and prognosis. The aim of this study is to elucidate if any differences in outcome exist between patients younger and older than 40 years. A case-control study was performed. Patients recorded in the head and neck cancer registry of Milano-Bicocca School of Medicine between January 1981 and December 1998 were reviewed. Cases were patients with squamous cell carcinoma of the tongue aged 40 years or less. Controls were patients older than 40 who were matched to cases for diagnosis, sex and TNM classification. Two controls were matched for each case, thus forty-six cases and 92 controls were selected. The frequency of recurrences was found to be significantly higher in younger patients. The survival analysis further supports this conclusion (log-rank test, $p = 0.002$). The number of cancer-related deaths in patients younger and older than 40 years were 23 (50%) and 31 (34%), respectively ($p = 0.10$). A statistical significant difference emerged when the number of deaths was compared using survival curves (log-rank test, $p = 0.05$). In conclusion, in patients with squamous cell carcinoma of the tongue, young age is an independent predictor of worse survival.
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Introduction

Cancer of the tongue has been regarded as a disease that usually affects men between the sixth through the eighth decades of life following long term exposure to cigarette smoking and alcohol abuse.[1] It was estimated that about 3% of these carcinomas occur in young patients but an increase to 6–7% has been recently recognised.[2–5] In this subgroup, the proportion of women is greater than in general population of tongue malignancies and history of smoking and drinking is less frequently reported.[1,6–11] Taking in account these features, tongue carcinoma in patients under 40–45 years of age seems to be a distinct biological entity but the underlying causes remain unknown at the moment.[12–14]

Some previous studies have reported that this carcinoma follows a more aggressive course in young patients, thus

* Corresponding author. Tel.: +39 039 2333623; fax: +39 039 324017.
    E-mail address: werner.garavello@unimib.it (W. Garavello).

arguing in favour of a more aggressive treatment in this sub-group.[1,8,15] This aspect is however controversial since some other studies failed to confirm this finding.[3,10—12] The aim of the present study is to elucidate if any differences in outcome exist between patients younger and older than 40 years.

Materials and methods

Patients recorded in the head and neck cancer registry of Milano-Bicocca School of Medicine between January 1981 and December 1998 were reviewed. Patients were included if they were diagnosed tongue squamous cell carcinoma. Patients with carcinoma in situ or multiple head and neck carcinomas were excluded. Patients were also excluded if they had metastatic disease at presentation or had received any oncologic treatment prior to refer or did not start/complete their planned therapy or detailed clinical data were not available. Cases were represented by patients aged 40 years or younger. Controls were those older than 40 years. The control group was selected randomly from the entire cohort of patients older than 40 years of age. The selection was made such that the gender, year of diagnosis (±5 years), T stage, N stage, histological grade and treatment match. Controls were matched to cases for sex and TNM classification. Two controls were matched for each case.

Information abstracted from this database included age, gender, tumour classification and stage, development and localization of recurrences and/or distant metastases. The tumour was described using the TNM classification and staged according to the American Joint Committee on Cancer (AJCC) cancer system (AJCC, 1997).[16] The treatment given was surgery, radiotherapy, chemotherapy, or any combination of these, as deemed appropriate for the stage by the treating physician. Follow-up consisted of physical examination and chest radiograph; other investigations such as liver ecography, CT scan, MRI scan or bone scintigraphy were performed when clinically indicated. If more than one recurrence were observed, the first one was used for data analysis.

Follow-up, recurrence and survival times were calculated from time of diagnosis. Cancer-free survival was defined as time from diagnosis to last follow-up evaluation in those who were alive or to time of death. Recurrent disease was defined as any local, regional, and metastatic disease occurring at least three months after the beginning of the primary treatment. Patients were considered cancer-free if at last follow-up evaluation there was no evidence of tumour (including those rendered free of disease after a salvage operation). Qualitative variables were analysed using Fisher exact test. Survival curves were calculated using the method of Kaplan and Meier and were compared using the log-rank test (SPSS.12.0-Windows, Chicago, IL, USA).

Results

Baseline characteristics of patients are shown in Table 1. The mean (range) age of patients younger and older than 40 years was 33.6 (23—40) and 64.2 (42—86) years, respectively. Histological grading and treatment given were extremely similar in the two groups ($p = 0.96$ and $p = 0.99$, respectively). The frequency of recurrences was found to

Table 1 Baseline characteristics of patients younger and older than 40 years old

Characteristics	Age ⩽ 40 years (n = 46)		Age > 40 years (n = 92)	
	Number	(%)	Number	(%)
Gender				
Male	31	67	62	67
Female	15	33	30	33
T Stage				
T1	25	54	50	54
T2	19	41	38	41
T3	2	5	4	5
T4	0	0	0	0
N Stage				
N0	28	52	56	52
N1	15	33	30	33
N2	7	15	14	15
N3	0	0	0	0
AJCC Classification				
I—II	34	74	68	74
III—IV	12	26	24	26
Histological grade				
Well differentiated	7	15	14	15
Moderately differentiated	29	63	56	61
Poorly differentiated	10	22	22	24
Treatment				
Surgery	23	50	45	49
Surgery + Radiotherapy	14	31	29	32
Other	9	19	18	19

AJCC: American Joint Committee on Cancer.

be significantly higher in younger patients. This event occurred in 34 (74%) cases and in 47 (51%) controls ($p = 0.011$). The median (range) time to relapse was 18 (4—48) months in the younger patients and 23 (4—50) months in the older ones. Sites of recurrences are shown in Table 2. This allocation primary reflects that the higher number of relapses in younger patients is attributable to an excess in local recurrences. Curves illustrating the rate of recurrence-free survival are shown in Figure 1. The survival analysis confirmed that rate of recurrences were significantly different in the two study groups (log-rank test,

Table 2 Pattern of disease recurrence according to age group

Site of recurrence	Age ⩽ 40 years (n = 46)		Age > 40 years (n = 92)	
	Number	(%)	Number	(%)
Local recurrence	18	39	22	24
Regional recurrence	12	26	23	25
Distant Metastasis	4	9	2	2
Total	34	74	47	51