Squamous Cell Carcinoma of the Oral Cavity in the Elderly

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──────── SUMMARY ────────

Background: As the population of older patients continues to grow and impact society, especially in developed countries, these individuals will require more medical attention. As such, it is important to compare the survival rates of patients suffering from oral squamous cell carcinoma beyond 65 years of age with younger patients.
Methods: A retrospective review of 418 patients diagnosed and treated between 2004 and 2006 for squamous cell carcinoma of the oral cavity at Mackay Memorial Hospital was carried out. Patients were divided two groups with a cut-off age of 65. Staging, overall survival and disease-free survival were determined for both populations.
Results: There were no significant differences between the two groups in stage I ($p = 0.901$ in overall survival [OS], $p = 0.889$ in disease-free survival [DFS]), stage II ($p = 0.345$ in OS, $p = 0.169$ in DFS), stage III ($p = 0.348$ in OS, $p = 0.119$ in DFS), stage IVB ($p = 0.234$ in OS, $p = 0.236$ in DFS) or stage IVC ($p = 0.086$ in OS). The survival after treatment was better in the younger group than the older group for stage IVA ($p = 0.009$ in OS, $p = 0.005$ in DFS).
Conclusion: Squamous cell carcinoma of the oral cavity did not have a significantly different outcome for elderly patients when compared with younger patients. Elderly patients with stage IVA squamous cell carcinoma of the oral cavity had poorer survival rates. When properly evaluated and monitored, conservative and conventional therapies seemed efficacious in the elderly. [International Journal of Gerontology 2009; 3(1): 75–80]

Key Words: elderly, geriatric oncology, oral cavity, squamous cell carcinoma

Introduction

Squamous cell carcinoma (SCC) of the oral cavity typically occurs in men during the sixth and seventh decades of life[1]. In Taiwan, there were 1,363 and 1,070 newly diagnosed patients with SCC over the subsites of the oral tongue and buccal mucosa in the year of 2005[1]. These patients had a high incidence of tobacco smoking, alcohol consumption and betel nut chewing, and may experience a relatively high rate of comorbidities associated with these agents compared with persons with cancer at some other anatomic sites.

Approximately 10–20% of head and neck malignancies are diagnosed in patients aged older than 65 years[1,2]. In the past, these patients were not considered good candidates to receive surgery, chemotherapy or even radiotherapy and probably were inadequately treated without combined therapies. Currently, progress in anesthetic reanimation and improvements in

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surgical reconstruction allow an increased choice of surgeries during the decision-making process for the elderly.

The purpose of this study was to evaluate the survival rate of carcinoma of the oral cavity in the elderly with different staging. To date, few publications in the literature have examined oral cancer in an older population.

Materials and Methods

From 2002 to 2004, 418 new patients with SCC of the oral cavity (including oral tongue and buccal mucosa) were evaluated, treated and followed up at the Mackay Memorial Hospital, Taipei, Taiwan[2]. We selected 65 as the cut-off age, in line with the definition of elderly, and analyzed the outcome after treatment in these two groups.

Seventy patients fulfilled the criteria to be considered for the older patient group, and 348 patients were enrolled in the younger group arm of the study. The following data were recorded from the patient files: age, stage, treatment modalities, and outcome. All tumors were staged according to the American Joint Committee on Cancer (AJCC) System, 2002. The patterns of treatment include surgery alone, radiotherapy alone, concurrent chemotherapy and radiotherapy (CCRT), surgery plus chemotherapy, surgery plus radiotherapy, and surgery plus CCRT. The outcome was evaluated as the overall survival (OS) and disease-free survival (DFS). Clinical staging and management was assessed by the decision of a multidisciplinary team.

Estimates of survival were computed with the Kaplan-Meier product limit method. All data were analyzed with SPSS 12.0 statistical software system (SPSS Inc., Chicago, IL, USA). A p value of <0.05 was considered statistically significant.

Results

In the older group of 70 patients, 13 cases presented as stage I, 10 as stage II, 14 as stage III, 25 as stage IVA, six as stage IVB, and two as stage IVC (Table 1). In the younger group of 348 patients, three cases presented as carcinoma *in situ* stage, 79 as stage I, 58 as stage II, 32 as stage III, 139 as stage IVA, 28 as stage IVB, and nine as stage IVC (Table 2). The treatment patterns in patients of each stage were also demonstrated in these tables.

The OS data were distributed as follows between the older and the younger groups: 67.13% vs. 77.33% for those with stage I, 56.00% vs. 70.31% for those with stage II, 64.29% vs. 56.25% for those with stage III, 22.44% vs. 45.91% for those with stage IVA, and 16.67% vs. 8.04% for those with stage IVB (Tables 3 and 4, Figures 1 and 2).

The data of DFS were distributed as follows between the older and the younger groups: 69.23% vs. 71.37% for those with stage I, 45.00% vs. 65.65% for those with stage II, 50.00% vs. 56.25% for those with stage III, 25.20% vs. 45.36% for those with stage IVA, and 16.67% vs. 8.33% for those with stage IVB (Tables 5 and 6, Figures 3 and 4).

There were no significant differences between the two groups in stage I ($p=0.901$ in OS, $p=0.889$ in DFS), stage II ($p=0.345$ in OS, $p=0.169$ in DFS), stage III ($p=0.348$ in OS, $p=0.119$ in DFS), stage IVB ($p=0.234$ in OS, $p=0.236$ in DFS), stage IVC ($p=0.086$ in OS). However, the survival after treatment was better in the younger group than the older group for stage IVA ($p=0.009$ in OS, $p=0.005$ in DFS) (Table 7).

Table 1. *Treatment patterns in patients ≥ 65 years of age*

Stage/Tx	Surgery	RT	CCRT	S+CT	S+RT	S+CCRT	Total
I	9	1			1	2	13
II	4	1	1	2	2		10
III	2	3	3	4	1	1	14
IVA	4	6	4	1	3	7	25
IVB		1	3			2	6
IVC		2					2
Total	19	14	11	7	7	12	70

Tx = treatment; RT = radiotherapy; CCRT = concurrent chemotherapy and radiotherapy; S = surgery.

Table 2.	Treatment patterns in patients < 65 years of age					
Stage/Tx	Surgery	RT	CCRT	S + RT	S + CCRT	Total
0 (Tis)	3					3
I	49	3	20		7	79
II	33	4	15	4	2	58
III	5	2	7	3	15	32
IVA	8	13	36	14	68	139
IVB		10	11		7	28
IVC		3	4		2	9
Total	98	35	93	21	101	348

Tx = treatment; RT = radiotherapy; CCRT = concurrent chemotherapy and radiotherapy; S = surgery; Tis = carcinoma in situ.

Table 3.	Overall survival (OS) in patients ≤ 65 years of age during 2004–2006				
AJCC stage	Total no.	No. of deaths	No. of survivals	3-year OS (%)	4-year OS (%)
0	3	0	3	100	100
I	79	15	64	80.00	77.33
II	58	14	44	75.00	70.31
III	32	14	18	56.25	56.25
IVA	139	67	72	49.74	45.91
IVB	28	24	4	16.07	8.04
IVC	9	8	1	–	–
Total	348	142	206		

AJCC = American Joint Committee on Cancer.

Table 4.	Overall survival (OS) in patients > 65 years of age during 2004–2006			
AJCC stage	Total no.	No. of deaths	No. of survivals	4-year OS (%)
I	13	4	9	67.13
II	10	4	6	56.00
III	14	5	9	64.29
IVA	25	17	8	22.44
IVB	6	5	1	16.67
IVC	2	2	0	–
Total	70	37	33	

AJCC = American Joint Committee on Cancer.

Discussion

Traditionally, SCC of the oral cavity is a disease targeting middle-aged men who habitually use tobacco, alcohol and betel nuts. We anticipated that poor tolerability to treatment in older patients led to undertreatment[3]. This point of view is correlated to our studies: fewer combined treatments were performed for the prevention of more comorbidities. There is a consensus on treating these older patients as candidates for conventional protocols even if there are conflicting data in the literature on the incidence of treatment-related deaths[4]. Italiano et al.[5] reported that older patients undergoing the surgical procedures of head and neck malignancies have the same rate of postoperative complications as younger patients. Age by itself may be not a reliable parameter for decision making. Personal performance and nutritional status are another important factor impacting the choice of treatment. Furthermore, Arduino et al.[6] revealed a
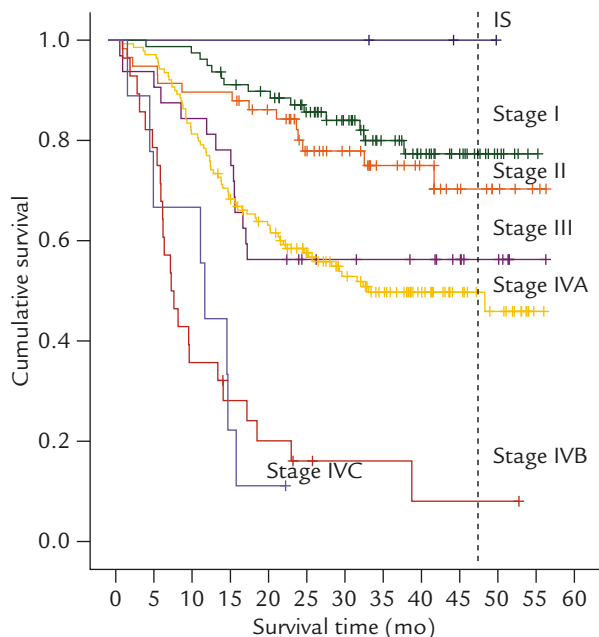
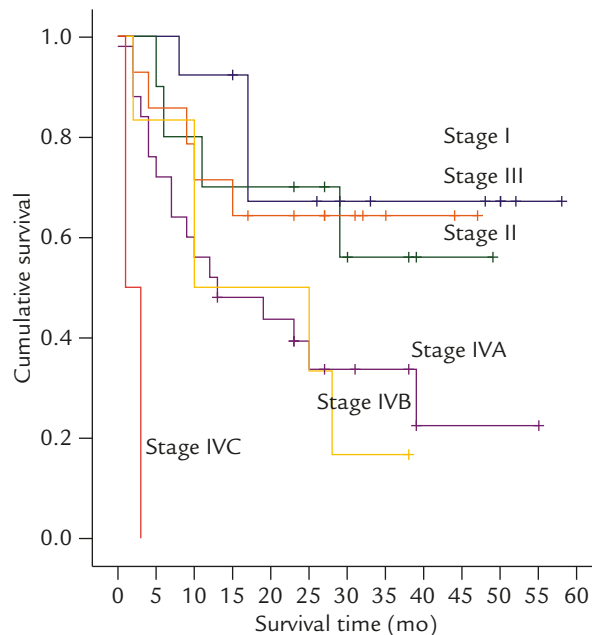**Figure 1.** Overall survival in patients ≤65 years of age during 2004–2006.

Figure 2. Overall survival in patients >65 years of age during 2004–2006.

Table 5.	*Disease-free survival (DFS) in patients ≤65 years of age during 2004–2006*				
AJCC stage	Total no.	No. of deaths	No. of survivals	3-year DFS (%)	4-year DFS (%)
0	3	0	3	100	100
I	79	19	60	74.12	71.37
II	58	16	42	70.34	65.65
III	32	14	18	56.25	56.25
IVA	139	67	72	46.66	45.36
IVB	28	24	4	16.67	8.33
Total	339	140	199		

AJCC = American Joint Committee on Cancer.

Table 6.	*Disease-free survival (DFS) in patients >65 years of age during 2004–2006*			
AJCC stage	Total no.	No. of deaths	No. of survivals	4-year DFS (%)
I	13	4	9	69.23
II	10	5	5	45.00
III	14	7	7	50.00
IVA	25	18	7	25.20
IVB	6	5	1	16.67
Total	68	39	29	

AJCC = American Joint Committee on Cancer.

significant increase in mortality in ages over 70, and Cinamon et al.[7] reported a higher incidence of major posttreatment complications in the senior group.

Radiotherapy is usually available in the treatment of elderly population and was given either as an alternative to surgery or as a standard treatment. Eighty-one percent of older patients were able tolerate radiotherapy (conventional fractionated or hypo-fractionated/split courses) without severe toxic reactions[5,8]. Considering the entire patient population that received
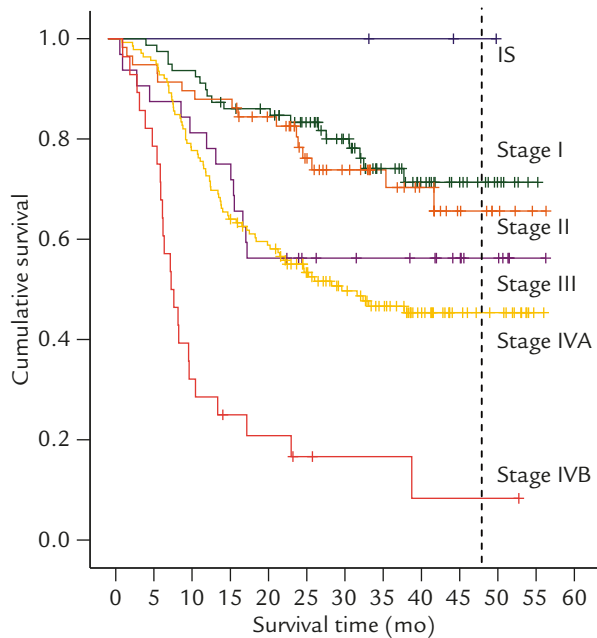
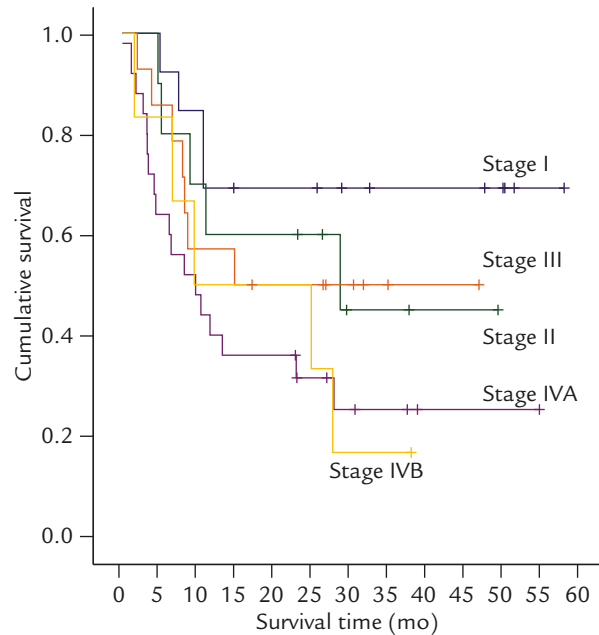**Figure 3.** Disease-free survival in patients ≤65 years of age during 2004–2006.

Figure 4. Disease-free survival in patients >65 years of age during 2004–2006.

Table 7.	*The p value of both groups*			
	No. of patients		p	
Stage	>65 years	≤65 years	OS	DFS
I	13	79	0.901	0.889
II	10	58	0.345	0.169
III	14	32	0.348	0.119
IVA	25	139	0.009	0.005
IVB	6	28	0.234	0.236
IVC	2	9	0.086	–

OS = overall survival; DFS = disease-free survival.

definitive radiotherapy, the rate of complete response was similar in both groups[9].

In this study, 16.7% (70/418) of SCCs of the oral cavity were diagnosed. Most patients younger than 65 in the early stage (stage I, 49/79; stage II, 33/58) received surgery only, while most of those younger than 65 in stage IVA (68/139) received surgery plus CCRT. The management of elderly patient care in each stage was not confined in surgery only or radiotherapy alone as any formal protocols, because the treatment was based on multiple considerations about the condition and performance of patients, choice of families, and preferences of team doctors. Nearly one-third of the patients younger than 65 years presented as stage IV, while elderly patients with oral cancer did not cluster in early or late stages when diagnosed.

The overall and disease-free survival rates for patients in early stages were comparable to those reported previously for a younger group[5]. In our study, the same result was obtained. The data of DFS were distributed between the older and the younger groups: 69.23% vs. 71.37% for those with stage I, and 45.00% vs. 65.65% for those with stage II. There were no significant differences between the two groups in stage I ($p=0.901$ in OS, $p=0.889$ in DFS) or stage II ($p=0.345$ in OS, $p=0.169$ in DFS). The outcome of patients with stage III/IV disease was particularly poor[5]. In our series, the 4-year DFS in the older and younger groups were: 50.00% vs. 56.25% for stage III, 25.20% vs. 45.36% for stage IVA, and 16.67% vs. 8.33% for stage IVB. There were no significant difference between the two groups in stage III ($p=0.348$ in OS, $p=0.119$ in DFS), stage IVB ($p=0.234$ in OS, $p=0.236$ in DFS) or stage IVC ($p=0.086$ in OS). The survival was also poor in the older groups in stage IVA ($p=0.009$ in OS, $p=0.005$ in DFS). The adverse outcome most likely was related to suboptimal management as previously described.

The most important predictors of survival in the elderly were the malignancy itself (metastases, recurrence) and the presence of secondary malignancies, comorbidities or treatment-related complications. The exact answer was not easily found, because many risk factors may have interfered. Future research on this point could benefit from more integrated or sensitive measurement methods.

In conclusion, SCC of the oral cavity in elderly patients did not seem to have a significantly different outcome when compared with younger patients. Elderly patients with stage IVA SCC of the oral cavity had a poorer survival rate. When properly evaluated and monitored, conservative and conventional therapy seemed efficacious in the elderly.

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