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The influence of marital status on survival for patients aged 65 years and younger with oral cavity cancer

Pei-Hsun Liao [a,b], Ching-Chih Lee [a,b,c,d,*]

[a] Department of Otolaryngology, Head, and Neck Surgery, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan
[b] School of Medicine, National Defense Medical Center, Taipei, Taiwan
[c] Department of Otolaryngology, Head, and Neck Surgery, Tri-Service General Hospital, Taipei, Taiwan
[d] Institute of Hospital and Health Care Administration, National Yang-Ming University

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ABSTRACT

Objective: In Taiwan, the median age of diagnosis for oral cavity cancer is 51 year old, which is about 10 years earlier than that in Western countries. A recent study assessing the effect of marriage on outcomes for elderly oral cavity cancer patients (≥66 years old) showed that marriage was associated with better survival. However, little is known about the prognostic significance of marital status in oral cavity cancer patients aged 65 years and younger.

Methods: Data from 2007 to 2014 were collected from the Cancer Registry Dataset of the Kaohsiung Veterans General Hospital. We reviewed the records of all newly diagnosed patients with oral cavity cancer who were aged 65 years and younger and being treated by primary surgery with or without neck dissection or adjuvant therapy. None of the included patients had distant metastasis upon diagnosis. In total, 457 patients were indentified. We used multivariate Cox regression model to evaluate the effect of marriage on disease-specific survival rates after adjusting for demographic variables and treatments.

Results: There was no significant difference between the married and unmarried groups in stage at diagnosis or treatment. The 5-year disease-specific survival was 70.9% in the married group and 51.2% in the unmarried group (P = 0.001). Multivariate analysis with Cox regression showed that unmarried patients had worse disease-specific survival (unmarried, adjusted hazard ratio [aHR] 1.51, 95% CI: 1.06–2.16). Subgroup analysis among patients stratified by the independent factors in multivariate analysis revealed that being unmarried was associated with a trend of worse survival in most stratified groups.

Conclusion: Marriage was associated with better disease-specific survival for oral cavity cancer patients aged 65 years and younger.

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1. Introduction

Oral cavity cancer is the most common form of head and neck cancer, and it has been ranked fourth in incidence and mortality since 1995 among all cancers in males in Taiwan [1]. The incidence of oral cavity cancer peaks among individuals in their 50 s in Taiwan, and the median age at diagnosis is 51 years old, which is about 10 years earlier than that in Western countries [2,3]. In addition to smoking and drinking, these patients also have a high incidence of betel nut chewing, which significantly increases the risk of oral cavity cancer and might explain the younger age at diagnosis of oral cavity cancer in Taiwan [1,4,5]. Oral cavity cancer leads to serious socioeconomic problems in Taiwan, and up to $ 1.2 billion (in U.S. dollars) had been spent on treatment every year since 2004 [1].

* Corresponding author at: No. 386, Ta-Chung 1st Rd., Kaohsiung 813, Taiwan.
E-mail address: cclee12063@vghks.gov.tw (C.-C. Lee).

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There have been great advances in surgical techniques and adjuvant treatments, such as chemotherapy and radiotherapy, but the long-term survival of oral cavity cancer patients has not improved significantly in recent decades [6]. Many studies have explored the factors affecting cancer survival, including the correlation between marital status and disease-specific survival. However, there is no consistent association between marital status and outcome. Marriage has been reported to have beneficial effects on survival in breast cancer, bladder cancer, gastric cancer, ovarian cancer, lung cancer, differentiated thyroid cancer, colorectal cancer and prostate cancer [7–11], but some studies showed no evidence of better survival in married cancer patients [12,13].

A recent study assessing the effect of marriage on outcomes for elderly oral cavity cancer patients (≥66 years old) showed that marriage was associated with better survival, and the protective effect of marriage might result from that married people were associated with earlier stage and more likely to receive recommended or aggressive treatment [14,15]. However, In Taiwan, the median age of oral cavity cancer is 10 years earlier than that in Western countries, and little is known about the prognostic significance of marital status in oral cavity cancer patients aged 65 years and younger. A better understanding of the impact of marital status on oral cavity cancer patients would help establish a more effective approach that may improve patient outcomes. In this study, we extracted data from the Cancer Registry Dataset of the Kaohsiung Veterans General Hospital for individuals aged 65 years and younger, who were diagnosed with oral cavity cancer between 2007 and 2014, and we used this data to analyze the relationship between the marital status and the survival of patients.

2. Methods

2.1. Ethical considerations

This retrospective study was approved by the Institutional Review Board of Kaohsiung Veterans General Hospital in Taiwan. The review board stated that written consent from patients was not required because all identifying information was removed from the dataset before analysis.

2.2. Patient population and study design

Data from 2007 to 2014 were collected from the Cancer Registry Dataset of the Kaohsiung Veterans General Hospital. We reviewed the records of all newly diagnosed patients with oral cavity cancer and being treated by primary surgery with or without neck dissection or adjuvant therapy. None of the included patients had distant metastasis upon diagnosis. All cases were staged according to the 2009 AJCC stage classification system (7th edition). The clinical endpoint was the 5-year disease specific survival rate. Oral cavity cancers included the following sites: the lip, floor of the mouth, oral tongue (excluding the base of the tongue), buccal mucosa, gingival and hard palate.

We included patients if they were newly diagnosed with oral cavity cancer and being treated by primary surgery with or without neck dissection or adjuvant therapy. Patients were excluded if they were aged 66 years and older at diagnosis, their treatment did not include wide excision of the primary site, the clinical information was incomplete, their marital status was not identifiable, they had a history of cancer, or the cause of death was missing. After selection by surgery of primary site, clinical information, marital status, history of cancer and cause of death, there were 557 patients in the cohort. After further selection by aged 65 and less, the final cohort comprised 457 patients. The cutoff age of 65 was selected given that the median age at diagnosis of oral cavity cancer in Taiwan is 51.0 years, which is about 10 years younger than that in Western countries. The variable of "marital status" referred to "the status at diagnosis". Patients who were never married, widowed or divorced were grouped together in the "unmarried" group.

2.3. Statistical analysis

Continuous variables were compared with one-way ANOVA, and category variables were analyzed with Pearson's chi-square test or Fisher's exact test. The disease-specific survival rate was described by Kaplan–Meier curve, and the differences were compared using a log-rank test. Multivariate Cox regression model was used to evaluate the effect of marriage on disease-specific survival rates after adjusting for demographic variables and treatments. All statistical analyses were computed using IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA).

3. Results

Table 1 showed the demographic and clinical data for the study population. A total of 457 patients were included in this study, with 337 (73.7%) married and 120 (26.3%) unmarried patients. Among these patients, 427 (93.4%) were male, and 30 (6.6%) were female. The median age was 51 years for married patients and 47 years for unmarried patients ($P < 0.001$). Unmarried patients were more likely to present with advanced nodal stages than married patients ($P = 0.004$), but overall, the stage at diagnosis was not significantly different between the two groups ($P = 0.531$). The rate of receiving neck dissection was 81.0% in married patients and 83.3% in unmarried patients ($P = 0.572$). The rate of receiving adjuvant therapy was 39.2% in married patients and 43.3% in unmarried group ($P = 0.424$). Table 2 showed the site distribution of primary tumors. The subsite of primary tumor was not significantly different between married and unmarried patients ($P = 0.602$).

The 5-year disease-specific survival was 70.9% in the married group and 51.2% in the unmarried group ($P = 0.001$) (Fig. 1). Univariate analysis showed that factors of poorer prognosis were unmarried status, advanced T classification, advanced N classification, late stage, poor cell differentiation, receiving neck dissection and receiving adjuvant therapy (Table 3).

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