

## 醫院手術量、醫師手術量與醫師專科別對口腔癌長期存活率的影響

### Effects of Hospital Volume, Surgeon Volume and Surgeon Specialty on Long-Term Survival for Oral Cancer

#### 中文摘要

研究背景：醫院及醫師手術量與治療成效的關係已經被國內外許多研究所支持，然而對於口腔癌治療是否具有上述「手術量－結果」關係的研究卻付之闕如。本研究除將探討醫院手術量與醫師手術量對口腔癌長期存活率的影響，也將進一步分析不同醫師專科別，對口腔癌治療之成效是否存有差異。

研究方法：本研究為回溯性研究，從 1997 年 1 月 1 日至 1999 年 12 月 31 日「全民健康保險研究資料庫」之住院資料中，得到全國接受口腔癌切除患者及執行手術的醫師及醫院資料，經交叉比對衛生署「死亡檔」，自患者住院日期開始進行五年之追蹤，以取得接受口腔癌切除患者之存活時間資料。醫院手術量與醫師手術量以每組患者人數大約相等為原則，各分為低、中、高三組，醫師專科別則分為一般或整形外科、耳鼻喉科、及其它專科三類。各組之五年存活率以

Kaplan-Meier estimation 計算後以 log-rank test 比較；醫院手術量、醫師手術量與醫師專科別對口腔癌五年存活率的影響則以涉險迴歸模式（Cox proportional hazard regression model），經控制相關患者及醫院、醫師等控制變項後獲得。所有 p 值均為雙尾檢定。

研究結果：三年內共 6,666 例患者接受口腔癌切除，其中 3,273 (49.1%) 在五年的追蹤期間內死亡。未經校正之口腔癌五年存活率隨著醫師手術量的增加而有顯著的增加（低、中、高醫師手術量三組之五年存活率分別為 45.5%、49.9%、以及 51.8%； $p < 0.001$ ），然而上述的關係則未出現在醫院手術量上（低、中、高醫院手術量三組之五年存活率分別為 47.5%、51.3%、以及 49.0%； $p = 0.074$ ）。醫師專科別部份，一般或整形外科、耳鼻喉科、及其它專科三組之五年存活率分別為 43.9%、49.9%、以及 50.0% ( $p < 0.001$ )。在控制其他變項之後，涉險迴歸模式則顯示，相較於低手術量醫師而言，接受高手術量醫師及中手術量醫師手術之五年存活率，其危險比 (hazard ratio) 分別為 0.810 (95% CI= 0.735-0.893) 以及 0.923 (95% CI= 0.847-1.005)；另外，相較於一般或整形外科醫師而言，接受耳鼻喉科醫師以及其它專科醫師手術之五年存活率，其危險比 (hazard ratio) 分別為 0.877 (95% CI= 0.786-0.978) 以及 0.889 (95% CI= 0.794-0.994)。

結論：在台灣，高醫師手術量對口腔癌患者手術後五年存活率具有顯著正面的影響，醫院手術量則否。醫師專科別對口腔癌患者手術後五年存活率有統計上差異，實際之影響則尚待進一步證實。

#### 英文摘要

Background: Although the relationship between provider volume and outcome has

been well established for many types of surgical procedures, such a relationship has yet to be examined for oral cancer resection. This nationwide, population-based study assessed the effect of hospital volume and surgeon volume on the 5-year survival from oral cancer in Taiwan. Besides, this study will measure the results of surgical oral cancer treatments by surgeons with different specialties.

**Methods:** From the Taiwan National Health Insurance Research Database, patients underwent oral cancer resection surgery were identified from January 1, 1997 through December 31, 1999. Registry data were linked to the “cause of death” data file published by the Department of Health in Taiwan and traced for 5 years to obtain the survival time of individual patients. For hospital and surgeon volumes, volume cut-off points were selected to create three volume groups with similar numbers of patient. Surgeon specialties were categorized into general or plastic surgeons, otorhinolaryngeal (Ear, nose and throat; or ENT) surgeons and surgeons of other specialties. Five-year survivals were calculated by the Kaplan-Meier method and compared by the log-rank test. Associations between hospital volume groups, surgeon volume and specialty groups, and 5-year survival were assessed by the Cox proportional hazard regressions with adjustment for characteristics of the patients and providers. All p values were two-sided.

**Results:** A total of 6,666 patients were identified and there were 3,273 deaths (49.1%) during the 5 year follow-up period. The unadjusted 5-year survival increased significantly as surgeon volume increased (45.5%, 49.9%, and 51.8% for low-, medium- and high-volume group respectively;  $p < 0.001$ ), but such association was not observed in the hospital volume groups (47.5%, 51.3% and 49.0% for low-, medium- and high-volume group respectively;  $p = 0.074$ ). The unadjusted 5-year survival for general or plastic surgeons, ENT surgeons and surgeons of other specialties were 43.9%, 49.9%, and 50.0% respectively ( $p < 0.001$ ). After adjusting for other variables, the Cox proportional hazard model shows that in comparison with treatment by low-volume surgeons, operations by high-volume surgeons and medium-volume surgeons were associated with an adjusted hazard ratio of 0.810 (95% CI=0.735 to 0.893) and 0.923 (95% CI=0.847 to 1.005) respectively. Compared with general or plastic surgeons group, the adjusted hazard ratio of ENT surgeon group and surgeons of other specialties group were 0.877 (95% CI=0.786 to 0.978) and 0.889 (95% CI =0.794 to 0.994) respectively.

**Conclusions:** Surgeon volume, but not hospital volume, has a positive effect on the 5-year survival following surgery for oral cancer in Taiwan. There are statistically significant differences between surgeons of different specialties in terms of the 5-year survival of their patients following oral cancer resection, but further studies are necessary to examine such differences in detail.