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The influence of age on postoperative complications after total laryngectomy or pharyngolaryngectomy☆

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Abstract

Objective: This study aimed to evaluate the role of age in the occurrence of postoperative complications after total laryngopharyngectomy (TLP) or total laryngectomy (TL).

Materials and methods: This was a retrospective study including all patients who underwent TLP or TL in our institution between January 2005 and December 2010. The impact of age (greater than 65 years), history of cancer treatments and comorbidities on early postoperative course was analyzed using univariate and multivariate analyses.

Results: Out of the 97 patients operated on, 21% had cancer of the hypopharynx and 79% of the larynx. Mean age at surgery was 63 years (41–90 years). 44% of patients were more than or equal to 65 years of age. Regarding local complications, only age ($p = 0.004$) had a statistically significant influence in univariate analysis. In multivariate analysis, age (OR 21.4, $p = 0.0001$) and alcohol consumption (OR 0.18, $p = 0.04$) were significant. Factors influencing the occurrence of general complications were, in univariate analysis: age >65 years ($p = 0.003$), type of surgery ($p = 0.042$), the presence of cardiovascular history ($p = 0.47$) and ASA score >2 ($p = 0.007$). In multivariate analysis, only age >65 years remained significant (OR 3.31, $p = 0.013$).

Conclusion: Our results highlight the importance of preoperative oncogeriatric evaluation from the age of 65 years to optimize surgical management.

Keywords: Cancer; Larynx; Head and neck; Geriatric; Elderly

Introduction

Cancers of the larynx represented 159,000 new cases and 90,000 deaths in 2002.[1] They are the eighth cause of death by cancer in the world,[2] and their 5-year survival rate is one of the lowest.[3] Nearly 3500 new cases of laryngeal cancer are diagnosed each year in France. Cancers of the larynx occur between 50 and 70 years in 2/3 cases. Twenty percent of head and neck cancers occur in people over 75 years, and 10% in those over 80.[4] There is no real consensus regarding the definition of "elderly" in the

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literature. WHO proposes the age of 65. In the English-language literature, The "National Institute on Aging" provides a more precise classification ("young old", "older", "very old"). It is estimated that, by 2030, nearly 20% of the population will be aged 75 years or more.[5,6] As these more fragile patients are often excluded from clinical trials, we lack good practice recommendations for this population. The only available data come from retrospective studies examining the 70–75-year old age group.[4]

Although many studies have shown that age is not an independent factor of poor prognosis in the treatment of head and neck cancers, the standard treatment for cancer is only performed in 50% of cases in the elderly.[7] It is undeniable that these patients have more comorbidities and must be managed with great care to avoid post-operative complications. Although a correlation between the presence of comorbidities and the occurrence of postoperative complications has been proven, the relationship between age and the occurrence of these complications is controversial.[8–10]

The objective of this study is to evaluate the role of age in the occurrence of postoperative complications after total laryngopharyngectomy (TLP) or total laryngectomy (TL).

Patients and methods

This is a retrospective study of all patients who underwent total laryngectomy with or without extended resection (total laryngectomy with partial pharyngectomy or extended to pre-laryngeal muscles and/or thyroid gland and/or skin) in a reference center for head and neck cancer between January 2005 and December 2010. All patients had squamous cell carcinoma of the larynx; other histologies were excluded from the study. All cases were discussed in a multidisciplinary meeting before surgery and received surgery with curative intent.

Patients were divided into two age groups: under 65 years old ($G < 65$ years) and 65 and over ($G > 65$).

The following data were collected:

- Patient characteristics: date of birth, gender, body mass index (BMI), ASA (American Society of Anesthesiology) score, and the following co-morbidities: heart (history of myocardial infarction, arterial hypertension and atrial fibrillation), vascular (history of surgery for carotid stenosis or occlusive arterial disease), respiratory (COPD and chronic respiratory failure), digestive (cirrhosis, hepatitis C and chronic pancreatitis), diabetes; neurological (Korsakoff's syndrome, history of stroke, epilepsy, Parkinson syndrome and alcoholic neuritis), psychiatric (psychosis, depression and cannabis addiction), immunosuppression (long-term use of corticosteroids, HIV, history of splenectomy), alcohol and tobacco (weaned or not), social isolation, history of cancer (lung, digestive or other location UAT).
- Tumor characteristics: tumor site, TNM stage, date and type of previous treatment if salvage surgery.
- Features of surgery: date, type of surgery performed with or without lymph node dissection, presence of preoperative tracheotomy, need for a flap cover.

The following complications were noted:

- Local complications at surgical site: infection, hematoma, pharyngocutaneous fistula, need for reoperation.
- General complications: cardiovascular, neurological or death.

Sample characteristics were detailed using frequencies for qualitative variables. Groups were defined in accordance with the patient age (<65 and ≥65 years), with the local complications (presence and absence), and general complications (presence/absence). First comparisons between the younger (<65 years) and the older (≥65 years) were performed using chi-square or Fisher's exact tests for frequencies for sociodemographics and clinical data. Second comparisons between the individuals with and without local complications, between individuals with and without general complications were performed using chi-square or Fisher's exact tests for frequencies. To determine the relationship of patient age with the presence of local complications, multivariate analysis using logistic regression models were performed using a forward stepwise. Variables relevant to the models were selected on their clinical interest and/or a threshold p-value ≤0.3 during univariate analysis: patient age, type of surgery, tobacco, alcohol, and BMI. The final models expressed the odds ratios and 95% confidence intervals. The same procedure was performed to determine the relationship of patient age with the presence of general complications. Variables relevant to the models were: age, type of surgery, history of cardiovascular disease, and ASA score. All the tests were two-sided. Statistical significance was defined as $p < 0.05$. The statistical analyses were performed using the SPSS version 15.0 software package (SPSS Inc., Chicago, IL, USA).

This study has been approved by our institutional review board.

Results

Of the 97 patients operated on, 21% had cancer of the hypopharynx and 79% cancer of the larynx. The average age at surgery was 63 years (41–90 years). 44% of patients were over or equal to 65 years of age. Patient characteristics are summarized in Table 1.

Table 2 summarizes the tumor characteristics in the two groups. The two age groups showed no significant difference with regard to tumor stage T and N. All patients were M0. The tumors were initially classified T1-T2 in 27% of patients and T3-T4 in 73%. Salvage surgery after radiotherapy was performed in 71% of cases. The mean hospital-stay duration was 26 days (4–111 days, median