Assessing the Different Oncologic Disease Distribution and Postoperative Complications of Octogenarian and Nonagenarian Head and Neck Oncology Patients

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Purpose: The admission rate of patients aged 80 years or older (oldest-old) with head and neck (HN) oncologic disease is on the rise. Our goal was to study the demographic characteristics, reasons for admission, types of surgical procedures, and postoperative complications of the oldest-old patients with HN malignancy.

Materials and Methods: We conducted a retrospective cohort study including all inpatients aged 80 years or older who were admitted to the department of otolaryngology–head and neck surgery or department of oral and maxillofacial surgery because of HN oncologic disease between 2009 and 2013. The control group was composed of a matched number of randomly selected patients aged 60 to 79 years. We compared the demographic characteristics, diagnoses, comorbidities, surgical interventions, and postoperative complications of the 2 age groups to characterize the oldest-old patients' admissions and determine whether age alone increases the risk of postoperative complications.

Results: The study included 109 oldest-old patients (median age, 83 years) and 107 patients in the control group (median age, 68 years). Although the oldest-old patients had significantly more underlying diseases (4.41 vs 2.86) and drugs prescribed (4.76 vs 3.21), similar rates of postoperative complications occurred in both groups. An important finding was that ischemic heart disease and chronic lung disease were the only significant risk factors for postoperative complications among the oldest-old patients (odds ratio on multivariate analysis of 5.5 and 4.5, respectively).

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Conclusions: Although comorbidities and prescribed drugs are more prevalent in the oldest-old patients, the rate of postoperative complications did not differ between the age groups, suggesting that age alone should not be a factor in the surgical treatment of HN malignancies.

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Life expectancy in Israel has risen by almost 6 years in the last quarter of a century to 79.9 years for men and 83.6 years for women.[1] Q4 The geriatric population is the fastest growing segment of the population in the United States and is forecasted to double to 80 million from 2010 to 2040.[2]

As expected, the increasing number of admissions of the geriatric population in general and of the oldest-old age group (≥80 years) in particular is a worldwide phenomenon. This population's hospitalization was reported to be longer and more expensive than that of the younger population.[3,4] We recently reported that the fraction of oldest-old patient admissions is on the rise and is expected to continue to climb in the upcoming years.[4] The most common indication for admission was head and neck (HN) malignancy (28.8%), followed by otologic disorders (22.0%).

The purpose of this study was to characterize the admission and treatment profile of the oldest-old patients (≥80 years) with HN oncologic disease. On the basis of previous studies,[3,4] we hypothesized that the oldest-old group of patients would differ from their younger counterparts in the distribution of different oncologic diseases, as well as comorbidities, and that these factors would affect the postoperative complication rate. The specific aims of this study were to compare the demographic characteristics, reasons for admission, types of surgery, and postoperative complications of the oldest-old patients with HN oncologic disease with a younger group of patients with HN oncologic disease to pinpoint differences that may affect treatment decisions.

Materials and Methods

To address the research purpose, we designed and implemented a retrospective cohort study. The study population was composed of all the oldest-old patients admitted to the department of otolaryngology–head and neck surgery (OTOHNS) or department of oral and maxillofacial surgery (OMS) in our medical center with known or suspected HN oncologic disease (group 1) between January 2009 and December 2013. The control group was composed of a matched number of younger patients, aged 60 to 79 years, with HN oncologic disease (group 2) who were selected alphabetically during the same period. The control group spanned 20 years of age, similarly to group 1, to allow comparison of the causes of admissions between the age groups and avoid masking of trends, which are characteristic of a narrow age group. The inclusion criteria in both the study and control groups were patients admitted for either evaluation or treatment of HN oncologic disease. The only exclusion criterion was lack of clinical data regarding diagnosis, surgical procedure, and postoperative period.

By study design, the 2 groups were separated by age, so age was used as a predicator variable to test whether additional differences existed between the oldest-old patients (aged ≥80 years) and their younger counterparts (aged 60-79 years). The primary parameters tested were site of oncologic disease, type of surgical procedure, and postoperative complications. We also analyzed differences in comorbidities, other demographic data, and the duration of hospitalization.

We performed stratification of the intervention level as follows: no surgical intervention during the hospitalization (level 0); minor surgery including excisional biopsy, direct laryngoscopy (DL), rigid esophagoscopy, and tracheostomy (level 1); major surgery without microvascular reconstruction (MVR) including thyroidectomy, parotidectomy, laryngectomy, wide local excision (WLE) with sentinel lymph node biopsy, and neck dissection (ND) (level 2); and major surgery including any surgical procedure with MVR (level 3). The study was approved by the Sheba Medical Center Institutional Review Board and was performed in compliance with ethical standards. Q5

STATISTICAL METHODS

A permutation test was performed to compare the average number of admissions per patient, and a Cox proportional hazards model was used to compare the duration of admission between the oldest-old group and the control group. The χ^2 test and Fisher Q6 exact test were applied to compare overall differences in the causes of admissions between the oldest-old and control groups. A Benjamini-Hochberg procedure was used to correct multiple comparisons and adjust the *P* value before comparing with the conventional .05 threshold. Univariate logistic regression and multivariate logistic regression were applied to find the factors that affected postoperative complications. All *P* values reported are 2 sided.