Factors associated with postoperative complications in elderly patients with skin cancer: A retrospective study of 241 patients

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ABSTRACT

Objectives: The increasing frequency of skin tumors and longer life expectancy of the general population are likely to increase the frequency of dermatological surgery among elderly patients. The purpose of this study is to assess the rate of postoperative complications related to dermatological surgery in elderly patients and highlight the factors associated with these complications.

Methods: We conducted a retrospective monocentric study of patients aged >75 years who presented at our multidisciplinary consultation specialized for skin tumors from January 2008 to December 2010. The clinical characteristics, demographic information, and cancer history of these patients were analyzed. Postoperative complications (dehiscence, infection, hematomas, and other sequelae) were identified to establish the postoperative complication rate and determine risk factors.

Results: We included 241 patients. Basal cell carcinoma, squamous cell carcinoma, and melanoma accounted for 46%, 25%, and 28% of tumors, respectively. Skin carcinomas were mainly located on the face (93% of basal cell carcinomas and 72% of squamous cell carcinomas), and melanomas were mainly located on the limbs (50%). The average number of comorbidities was 3.0 ± 1.5. The average postoperative complication rate was 20%. Multivariate analysis identified three independent risk factors: male gender (p < 0.033), histological type (squamous cell carcinoma and melanoma) (p < 0.008), and insufficient surgical resection (p < 0.004).

Conclusion: This study highlighted a high rate of postoperative complications in this elderly population. Three significant postoperative risk factors were identified. They may be used to assess a patient's operational risk as well as geriatric assessment tools.

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1. Introduction

The increasing frequency of skin tumors and longer life expectancy of the general population are likely to increase the frequency of dermatological surgery among elderly patients. We regularly perform surgery on older patients with multiple comorbidities. A pertinent clinical issue in this age group is whether surgery-related morbidity is acceptable or not with respect to the expected benefits. However, little information about dermatological surgery in elderly patients is available in the literature.

The aim of this study was to evaluate the rate of postoperative complications related to dermatological surgery in elderly patients and highlight the factors associated with these complications. These risk factors could contribute to the establishment of a "fragility score" that would facilitate objective assessment of surgical risk. Such assessment would be useful to determine the most appropriate treatment and objectively inform the patient and his family of the procedural risks.

2. Materials and Methods

This was a monocentric retrospective study. Data were collected from the computerized database of the multidisciplinary consultation specialized for skin tumors at Henri Mondor University Hospital (UPEC). The inclusion criteria were an age of >75 years and presentation at the consultation from January 2008 to December 2010 for basal cell carcinoma, squamous cell carcinoma, or melanoma in any dermatological location. Patients with other malignant lesions, benign lesions, or precancerous lesions and patients who did not undergo surgical treatment were excluded. All patients included in the study were operated by the same plastic surgical team. The majority of these patients were operated under a local anesthesia combined with sedation.

Potentially causative patient factors associated with an increased risk of surgical complications collected in this study were age, sex, number of comorbidities, diabetes, other associated cancers, weight, surgical specimen size, and administration of anticoagulant or antiplatelet agents. Tumor characteristics (tumor site, size, histological type, and margin analysis) and the occurrence of postoperative complications (dehiscence, infection, hematomas, and other sequelae) were identified from the medical files of all patients. All patients were systematically evaluated by the surgeon 10 days after surgery and by the dermatologist 2 weeks later.

Statistical analysis was performed using a statistical software program (PASW Statistics for Windows, version 18.0, released 2009; SPSS, Inc., Chicago, IL). Qualitative variables are presented as numbers and percentages. Quantitative variables are presented as mean ± 1 standard deviation or median (first to third quartiles) in cases of skewed distribution. Qualitative variables were compared using the χ^2 test or Fisher's exact test as necessary. Quantitative variables were compared using Student's t test or the parametric Mann–Whitney U test in cases of distribution away from normal. Univariate analysis of factors associated with complications was performed. All factors found to be significantly associated with complications ($p < 0.10$) were fitted into a multivariate model (logistic regression). Statistical significance was set at a p value of ≤0.05. The adjusted odds ratio was estimated from the model and is presented with the 95% confidence interval.

We followed the recommendations of the French National Authority for Health regarding resection margins of basal cell carcinoma, squamous cell carcinoma, and melanoma.[1–3] This study abided by the rules of the Commission Nationale Informatique et Liberté. Data were collected after obtaining approval from the data management team at the Public Assistance Hospitals of Paris. Data processing was subject to the confidentiality rules enforced in our establishment.

3. Results

Two hundred and forty one patients were included in this study. Their ages ranged from 75 to 108 years, with a mean of 84.7 years. Of the 241 patients, 106 (44%) were male and 135 (56%) were female; the 1 male:1.27 female ratio of the study population did not differ significantly from that of the general French population in this age range. The average number of comorbidities was 3.0 ± 1.5 (data missing for 2 patients). Sixteen percent of patients were diabetic (data missing for 1 patient), 28% had a previous cancer history (data missing for 1 patient), and 52% were treated with anticoagulant or antiplatelet agents. The patients' body mass index (BMI) ranged from 14.0 to 41.0 kg/m², with a mean BMI of 25.2 ± 4.8 kg/m² (data missing for 114 patients).

Basal cell carcinoma, squamous cell carcinoma, and melanoma accounted for 46%, 25%, and 28% of tumors, respectively (Table 1). The distribution of tumor locations was statistically different among the three histological types ($p < 0.001$). A facial location predominated for skin carcinoma,

Table 1 – Clinical and demographic data with respect to histological cancer type.			
	Basal cell	Squamous cell	Melanoma
Lesions, n	112	61	68
Percentage	46%	25%	28%
Average age	85.0 ± 5.1 years	84.9 ± 5.6 years	83.8 ± 5.1 years
Female/male ratio	61/51	40/21	34/34
Tumor location (%)			
• Face	93%	72%	35%
• Trunk	3%	7%	15%
• Limb	4%	21%	50%
Average surgical specimen size (mm)	14.2 ± 9.4	17.8 ± 12.4	15.7 ± 10.3
Complication rate	10.7%	26.9%	28.8%