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Original scientific paper

Head and Neck Cancer Surgery in Elderly: Complications and Survival Rate

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A B S T R A C T

The number of aged patients with head and neck cancer is increasing. The aim of this study was to evaluate the outcome of elderly patients with head and neck cancer undergoing surgery. Retrospective analysis of a series of 1509 consecutive patients separated in two groups regarding their age: younger than 70 and older than 70 years, with head and neck tumors treated surgically was performed. Pre-existent comorbid conditions, immediate and long-term surgical and medical complications were analyzed. Postoperative surgical and medical complications were scored according to their severity. During the ten years period the group of patients older than 70 years comprised of 356 patients, or 23.6%. Primary site tumor distribution was similar in both patients groups. Cancer stage grouping was equally distributed between older patients and the other patients. We found the biggest incidence of postoperative complications for hypopharyngeal, than laryngeal, and oropharyngeal cancer. Swallowing difficulties were documented in 16.5% for hypopharyngeal, 10.0% for laryngeal, and 7.3% for oropharyngeal site. Aspiration was present in 3.1% to 1.8%, respectively. Survival rate was similar for different cancer locations, and was more influenced by the advancement of tumor. Postoperative complications are related to tumor location, and extent of the disease. According to the results of our study head and neck cancer in elderly should be treated by conventional protocols.

***Key words**: larynx, oropharynx, hypopharynx, squamous cell carcinoma, old age, five year survival, complications*

Introduction

In the medical literature, persons older than 70 are often define as elderly. The National Institute of Aging uses three categories to define aged patients: 65–74 years young old, 75–84 years older old and 85 and over oldest old.

The percentage of elderly people with head and neck squamocellular cancer (HNSCC) is rising due to an overall increase in life expectancy. The most common sites of HNSCC are larynx, and oral cavity, followed by oro- and hypopharynx[1,2].

As life expectancy increases, clinicians increasingly face the challenge of treating elderly patients with cancer, including head and neck cancer. There are few publications in the literature concerning HNSCC outcome in the older population[1,2].

Age has been shown to be an independent predictor of perioperative outcome, morbidity, and mortality risk. This is caused by less efficient cardiac output under the stress of surgery and anesthesia, lower renal blood flow, and water and electrolyte imbalances, together with reduction of pulmonary function in elderly. Elderly patients are less resistant to postoperative infections due to the progressive impairment of the immune system[3,4].

The aim of this study was to evaluate the outcome of elderly patients with head and neck cancer undergoing surgery, especially for laryngeal, oro- and hypopharyngeal carcinoma.

Materials and Methods

Retrospective analyze of a 1509 consecutive patients separated in two groups regarding their age (under 70 and over 70 years) with head and neck tumors undergoing surgical resections was performed.

From total group of the patients we separately studied and hereby present the surgical treatment of laryn-

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geal, hypopharyngeal and oropharyngeal cancer. These tumors affect aerodigestive crossing, with consequent great importance, possible complications and worse results.

Pre-existent comorbid conditions, immediate and long-term surgical and medical complications were analyzed. Postoperative surgical and medical complications were scored according to their severity, and compared statistically.

Results

In our 10 years retrospective study of 1509 patients surgically treated for head and neck cancer, the group of patients older than 70 years consisted of 356 patients. Comorbidity was twice more frequent in older patients, especially cardiovascular diseases present in 35.4%, and diabetes mellitus in 9.7% of these patients.

Laryngeal cancer predominated in the analyzed group of the patients with 458 cases. The increase of female patients in elderly was evident. There was no significant difference in performed operations in two age groups. Swallowing difficulties and aspiration were increased in older patients. Also, 5-year survival rate was worse in older, especially with advanced stages of disease (Table 1).

There were 115 hypopharyngeal cancers in older patients. Female predominance in elderly was here more evident. Type of surgical procedure, and postoperative infection were similar in both age groups. However, swallowing difficulties and aspiration were also typical for older patients with extensive resection. Survival rate was reduced in older patients with advanced cancer (Table 2).

Oropharyngeal cancer was similarly present in this study with 110 cases older than 70 years. Again, there was no statistical difference for the type of surgery, and postoperative infection. Swallowing difficulties were rarer, more frequent in older patients. 5-year survival rate was similar to previous cancer localizations (Table 3).

Discussion

There is a significant sex ratio difference for HNCSS in elderly, with the increase of female patients who have

TABLE 1
COMPLICATIONS AND SURVIVAL RATE FOR LARYNGEAL CARCINOMA DEPENDING ON AGE

Site/ operation	Male				Female				Total	
	<70 y		>70 y		<70 y		>70 y			
	No	%	No	%	No	%	No	%	No	%
Larynx	363	79.3	69	15.1	15	3.3	11	2.4	458	100.0
tot. laryngectomy	162	83.1	25	10.3	4	2.0	4	2.0	195	42.6
hemilarygectomy	100	77.5	24	18.6	3	2.3	2	1.6	129	28.2
supraglottic	48	73.8	12	18.5	3	4.6	2	3.3	65	14.2
frontolateral	30	81.1	3	8.1	3	8.1	1	2.7	37	8.1
chordectomy	23	71.9	5	15.6	2	6.3	2	6.3	32	7.0
Neck dissection										
radical	122	33.6	20	29.0	6	40.4	4	36.4	152	33.2
functional	184	50.7	33	48.7	7	46.7	5	45.5	229	50.0
no	57	16.7	16	23.2	2	13.3	2	18.1	77	16.8
Infection										
no	307	84.6	58	84.1	13	86.7	9	81.8	387	84.5
yes	56	15.4	11	15.9	2	13.3	2	18.2	71	15.5
Swallowing diff.										
no	334	92.0	57	82.6	13	86.7	8	72.7	412	90.0
yes	29	8.0	12	17.4*	2	13.3*	3	27.3*	46	10.0
Aspiration										
no	356	98.1	64	94.2	15	100.0	9	81.8	444	96.9
yes	7	1.9	5	5.8*	0	0.0	2	18.2*	14	3.1
5-y survival										
T1-T2	148	73.6	25	56.8	6	55.5	3	42.9*	182	69.2
T3-T4	96	59.3	10	40.0*	2	50.0	1	25.0*	109	55.9
St I-II	126	72.4	17	54.8	5	55.6	2	40.0	150	67.6
St III-IV	128	67.7	18	47.4*	3	50.0	2	33.0*	141	59.0

* statistically significant for $p \leq 0.05$

TABLE 2
COMPLICATIONS AND SURVIVAL RATE FOR HYPOPHARYNGEAL CARCINOMA DEPENDING ON AGE

Site/ operation	Male				Female				Total	
	<70 y		>70 y		<70 y		>70 y			
	No	%	No	%	No	%	No	%	No	%
Hypopharynx	81	70.4	21	18.3	9	7.8	4	3.5	115	100.0
partial pharyngec	41	80.4	7	13.7	3	5.9	0	0.0	51	44.3
part ph+tot lar	40	62.5	14	21.9	6	9.4	4	6.3	64	55.7
Neck dissection										
radical	43	53.0	15	71.4	6	66.7	3	75.0	67	58.2
functional	30	37.0	4	19.0	2	22.2	1	25.0	37	32.2
no	8	10.0	2	9.6	1	11.0	0	0.0	11	9.6
Infection										
no	62	76.5	16	76.2	6	66.7	3	75.0	87	75.6
yes	19	23.5	5	23.8	3	33.3	1	25.0	28	24.4
Swallowing diff.										
no	71	87.7	16	76.2	7	77.8	2	50.0	96	83.5
yes	10	12.3	5	23.8*	2	22.2*	2	50.0*	19	16.5
Aspiration										
no	356	98.1	64	94.2	15	100.0	9	81.8	444	96.9
yes	7	1.9	5	5.8*	0	90.0	2	18.2*	14	3.1
5-y survival										
T1-T2	20	48.7	4	57.1	2	66.6	0	0.0	26	50.9
T3-T4	21	52.5	5	35.7*	3	50.0	1	25.0*	30	46.9
St I-II	19	59.4	2	50.0	1	50.0	0	0.0	30	65.2
St III-IV	2	44.9	1	20.0*	2	28.6	1	25.0*	26	37.7

* statistically significant for $p \leq 0.05$

longed life expectancy. This was also verified in this study. HNCSS was less associated with alcohol abuse and smoking in older group, probably reflecting time effect on the higher incidence of mutations.

For a long time older patients with HNSCC were not considered good candidates to receive aggressive therapy, and were inadequately treated in many institutions. Several studies have shown that older patients with HNSCC are less likely to receive potentially curative treatment when compered with the younger age group based on age alone (30–74% *vs*. 67–91%).[3]

The decision concerning oncologic therapy in elderly should be based on the patient's wishes, anesthesia risks, supportive case possibilities, mental status, and combined quality of life and function, instead of being based on the patient's age and years of life expectancy. So, comprehensive geriatric assessment is essential in the preoperative period.

Perioperative mortality in elderly is low, under 3–5%[5–9]. No significant differences in perioperative or postoperative complications between head and neck cancer patients older than 70 years and younger patients were reported[5–9].

We found the biggest incidence of postoperative complications for hypopharyngeal, than for laryngeal, and for oropharyngeal cancer. So, infection was found in 24.4%, 15.5%, and 5.4% respectively. Swallowing difficulties were documented in 16.5% for hypopharyngeal, 10.0% for laryngeal, and 7.3% for oropharyngeal site. Aspiration was present in 3.1% to 1.8%, respectively. This complication rate is directly correlated to the extent of surgical resection.

According to this study, as well as stated in the references, wide resections of base of tongue, and lateral pharyngeal wall are not recommended in elderly. Conservation surgical laryngectomy demands good pulmonary function and active patient's cooperation during the postoperative course. Transoral surgery, particularly laser surgery, should be used to maximal extent in older patients with HNSCC.

Conservation surgery of upper aerodigestive tract, such as supraglottic laryngectomy, reconstructive subtotal laryngectomy, conservation surgery of base of tongue and of hypopharynx, caused low mortality rate in elderly patients (0–7%). Prevention of pulmonary complications and prolonged nutritional rehabilitation after this surgical procedure are mandatory[5–9].

Overall 5-year survival rate is significantly lower in older group (17–31% *vs*. 30–44%). However, cancer specific survival is similar for all cancer locations. Postoper-

TABLE 3
COMPLICATIONS AND SURVIVAL RATE FOR OROPHARYNGEAL CARCINOMA DEPENDING ON AGE

Site/ operation	Male				Female				Total	
	<70 y		>70 y		<70 y		>70 y			
	No	%	No	%	No	%	No	%	No	%
Oropharynx	79	70.0	14	12.7	9	8.2	8	7.3	110	100.0
tonsill resection	17	70.8	3	12.5	3	12.5	1	4.2	24	21.8
palatum resect	28	65.1	6	14.0	4	9.3	5	11.6	43	39.1
glossectomy	32	74.2	5	11.6	2	4.7	2	4.7	43	39.1
Neck dissection										
radical	18	22.8	1	7.1	2	22.2	1	12.5	22	20.0
functional	52	65.8	10	71.4	5	55.6	5	62.5	72	65.5
no	9	11.4	3	21.5	2	22.2	2	25.0	16	14.5
Infection										
no	74	93.7	13	92.9	9	100.0	7	87.5	103	93.6
yes	5	6.3	1	7.1	0	0.0	1	12.5	7	5.4
Swallowing diff.										
no	75	95.0	12	85.7	8	88.9	7	87.5	102	92.7
yes	4	5.0	2	14.3*	1	11.1*	1	12.5*	8	7.3
Aspiration										
no	79	100.0	13	92.9	9	100.0	7	87.5	108	98.2
yes	0	0.0	1	7.1	0	0.0	1	12.5	2	1.8
5-y survival										
T1-T2	25	71.4	5	62.5	3	60.0	2	50.0	35	67.3
T3-T4	26	59.1	2	33.3*	2	50.0	1	25.0*	31	53.4
St I-II	30	65.7	4	57.1	3	75.0	2	50.0	39	81.3
St III-IV	21	47.7	2	28.6*	2	40.0	1	16.7	23	37.1

* statistically significant for $p \leq 0.05$

ative pneumonia is the most common medical complication with important mortality rate in elderly patients[5–9].

Survival rate in this study was similar for different cancer locations, and advancement of tumor, especially Stage III and IV, was more influential on the outcome. Reduced five year survival rate in this study was more related to intercurrent diseases in older patients, and ageing process itself.

EUFOS Congress pannell made the following conclusion on this subject. Comorbidity, functional status and cognitive impairment affects treatment outcome more than age. Elderly patients cope and adapt relatively well and the data on the quality of life is comparable, if not better compared to younger patients. Therefore, elderly patients should be offered treatment options with curative intent as for younger patients[10].

Other treatment modalities in older patients with HNSCC are also important. Radiotherapy showed no evidence of impaired treatment tolerance. Also, age-related guidelines for chemotherapy administration are often missing. Antitumoral activity of chemotherapy for HNSCC is similar between younger and elderly patients. The tolerability of chemotherapy in older patients is still controversial[11,12].

Conclusions

Postoperative complications (infection, swallowing difficulties and aspiration) correlate to the location of the primary tumor, and the extent of the disease. The survival rate is lower in older patients for all analyzed tumor locations. Head and neck cancer in elderly should be treated by conventional protocols.

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KIRURGIJA KARCINOMA GLAVE I VRATA U STAROSTI: KOMPLIKACIJE I STUPANJ PREŽIVLJAVANJA

SAŽETAK

U porastu je broj pacijenata starijeg uzrasta sa karcinomom glave i vrata. Cilj ovog izučavanja je ispitivanje ishoda kirurškog liječenja karcinoma glave i vrata u starijih pacijenata. Provedena je retrospektivna analiza 1509 konsekutivnih pacijenata kirurški tretiranih zbog malignih tumora glave i vrata podijeljenih u dvije starosne grupe: mlađi od 70 godina i stariji od 70 godina. Analizirana su i prethodna komorbidna stanja, kao i neposredne i kasne komplikacije prema njihovoj težini. U desetogodišnjem periodu bilo je 356 ili 23,6% pacijenata starijih od 70 godina. Lokalizacija primarnog tumora bila je slična u obije grupe. Stadij maligne bolesti bio je podjednako raspoređen u grupi mlađih i starijih pacijenata. Nađena je veća učestalost komplikacija kod karcinoma hipofarinksa u odnosu na karcinom larinksa i orofarinksa. Otežano gutanje je ustanovljeno u 16,5% karcinoma hipofarinksa, u 10,0% carcinoma larinksa i 7,3% carcinoma orofarinksa. Aspiracija je bila prisutna u 3,1 do 1,8% respektivno. Stopa preživljavanja je bila slična kod različitih lokalizacija tumora, sa značajnim udjelom uznapredovalosti tumora. Postoperativne komplikacije ovise od lokalizacije malignog tumora i proširenosti procesa. Prema rezultatima ove sutdije karcinom glave i vrata u starijih pacijenata treba tretirati konvencionalnim protokolima.