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SESSION 5 - Head and Neck cancer in elderly

1. LOW SKELETAL MUSCLE MASS IS A NEGATIVE PREDICTIVE FACTOR IN PATIENTS UNDERGOING TOTAL LARYNGECTOMY

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2. FRAILTY IN HEAD AND NECK CANCER PATIENTS: THE PINEROLO AND RIVOLI HOSPITALS EXPERIENCE

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3. PATTERNS OF LOCO-REGIONAL TUMOR FAILURE IN ELDERLY PATIENTS WITH HEAD AND NECK SQUAMOUS CELL CARCINOMA TREATED WITH DEFINITIVE RADIOTHERAPY COMPARED TO YOUNG PATIENTS IN RELATION TO DOSE DISTRIBUTION

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4. WEIGHT LOSS AND FEEDING TUBE USE IN ELDERLY PATIENTS UNDERGOING RADIOTHERAPY ± CHEMOTHERAPY FOR HEAD AND NECK CANCER

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5. MAJOR ONCOLOGIC SURGERY IN ELDERLY PATIENTS WITH HEAD AND NECK CANCER: THE ROLE OF THE CHARLSON COMORBIDITY INDEX IN PREDICTING SURGICAL OUTCOMES AND ONCOLOGIC PROGNOSIS

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6. LONG-TERM SWALLOWING FUNCTION, COMPLICATIONS AND QUALITY OF LIFE AFTER SUPRACRICOID LARYNGECTOMY

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7. CHA2DS2-VASC IN PREDICTION OF MAJOR CARDIAC AND CEREBROVASCULAR EVENTS IN HNC PATIENTS

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8. HOW THE OPERATED LARYNX AGES

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9. TREATMENT AND OUTCOME OF ADVANCED EXTERNAL AUDITORY CANAL AND MIDDLE EAR MALIGNANT TUMORS

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1. Low skeletal muscle mass is a negative predictive factor in patients undergoing total laryngectomy

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Rationale: Low skeletal muscle mass (SMM), also termed sarcopenia, is frequently found in elderly and is associated with postoperative complications, prolonged hospital stay and short overall survival (OS) in surgical oncology. We hypothesized that the occurrence of postoperative complications including pharyngocutaneous fistula (PCF), prolonged hospital stay and short overall survival (OS) are associated with pre-treatment low SMM in patients undergoing total laryngectomy (TL).

Materials and methods: A study was performed of all patients undergoing TL between January 2008 and June 2017 at the University Medical Center Utrecht, the Netherlands. At the level of the third cervical vertebra (C3), SMM was measured using pre-treatment CT or MRI scans and controlled for height (cm2/m2). Patients had low SMM if this value was below the recently published cut-off point of 43.2 cm2/m2. Data on postoperative complications including PCF, graded according to the Clavien-Dindo Classification, duration of hospital stay and survival were retrospectively retrieved. The associations between low SMM and negative outcomes were investigated. Multivariate Cox regression analysis was performed.

Results: During the set time period, 245 patients underwent TL. Of the 245 patients, 235 (95.9%) had appropriate imaging available, of whom 109 patients (46.4%) had low SMM. Patients with low SMM had more PCF than patients with normal SMM (34.9% versus 20.6%, p=0.015), and had more severe postoperative complications (33.0% versus 21.4%, p=0.045). Hospital stay was significantly longer in patients with low SMM than in patients with normal SMM (24.5 days versus 17.3 days, p<0.001). In univariate analysis, low SMM, low BMI and high N-stage (N2 and N3) were significantly associated with shorter OS. In multivariate analysis, only low SMM (HR: 2.066, 95% CI: 1.462 – 2.995) and N3 stage [HR 17.680, 95% CI 4.035 – 77.473) remained significant prognosticators.

Conclusions: Low SMM is associated with PCF, postoperative complications and prolonged hospital stay in patients undergoing TL. Low SMM is an independent prognostic factor for shorter OS. Pre-treatment assessment of SMM can help identifying patients at risk of developing complications after TL. Proactive interventions aimed at improving a patient's physical and nutritional status may aid in reducing the occurrence of these complications.

2. Frailty in head and neck cancer patients: the Pinerolo and Rivoli Hospitals experience

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Rationale: The identification of frailty conditions (functional and physiologic decline) of head and neck cancer patients and therefore the acknowledgement of the ability to withstand and recover from head and neck surgery has obtained the highest importance nowadays. The aim of this study was to assess frailty and outcomes in a population of head and neck cancer patients, by the mFI screening tool.

Materials and methods: The cohort consisted of patients who were treated for head and neck cancer between June 2015 and June 2017. The modified Frailty Index (mFI) was administered to all patients. Collected data for each patient were as follows: age at treatment, gender, frailty status, tumour site, treatment, and complications.

Results: 144 patients (mean age 69, 115 males and 29 females) were included in the study. 57 patients (39,6%) had a mFI of 0, 40 had a mFI score of 1 (27,8 %), and the remaining 47 subjects (32,6%) presented a mFI score equal or higher than 2. Overall, 29 (20%) patients experienced a postoperative complication. A statistically significant association between frailty and the presence of complications ($p = 0,026$) was found. Patients with mFI values of 2 or higher had an increased likelihood (4 times higher) of developing any postoperative complication compared with the control group (mFI score = 0).

Conclusions: The modified frailty index score revealed to be useful for predicting which patients are at increased risk of perioperative complications. Frailty assessment, rather than age, might become crucial for risk stratification and perioperative counseling.

3. Patterns of loco-regional tumor failure in elderly patients with head and neck squamous cell carcinoma treated with definitive radiotherapy compared to young patients in relation to dose distribution

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Rationale: The primary aim was to report loco-regional tumor failure (LRF) rates of elderly head and neck squamous cell carcinoma (HNSCC) patients treated with definitive radiation therapy (RT) compared to young patients, in relation to the original dose distribution, the centroid-based method. The second aim was to determine the most important prognostic factors for LRF, local tumor failure (LF) and regional tumor failure (RF) for the elderly HNSCC patients.

Materials and methods: Prospectively collected data was retrospective analyzed of all consecutive HNSCC patients treated between April 2007 and December 2014 treated with definitive RT (66-70 Gy). A total of 662 patients were included. 165 patients were 70 years, including 35 patients (21.2%) with LRF. The centroid-based method was performed to classify LRF, LF and RF into five types; A (central therapeutic dose), B (peripheral therapeutic dose), C (central elective dose), D (peripheral elective dose), and E (extraneous dose). Multivariable Cox regression analysis was used to identify risk factors for LRF, LF and RF.

Results: 147 patients (22.2%) developed LRF. No difference between the elderly and young patients was found regarding LRF rate (23.6% vs 24.2%; p=0.826) and LF rate (19.8% vs 13.7%; p=0.066). The 3-year RF rate was significantly lower in the elderly compared to young patients (6.8% vs 11.4%; p=0.042).

112 patients (76.2%) were diagnosed with at least one LRF classified as type A/B. Nine patients (6.1%) with LRF classified as type C/D. 15 patients (10.2%) with LRF outside the original CTVs. There was no difference in distribution of the LRF classifications between the elderly and young patients (p=0.482).

Multivariable Cox regression analysis for LRF type A&B showed WHO-PS (p<0.001), primary tumor volume (p=0.002), N-stage (p=0.003), smoking habits (p=0.008) and treatment technique (p=0.042) as significant variables. Multivariable analysis for only LF type A&B showed primary tumor volume (p<0.001), WHO-PS (p=0.036) and smoking habits (p=0.043) as significant variables. Age was not found to be statistically significant in both analysis for LRF and LF (p= 0.385 and p=0.391 respectively). No multivariable Cox regression analysis for RF could be made.

Conclusions: Patterns of LRF and LF in elderly HNSCC patients do not differ from young patients. Multivariable prediction model for LRF type A & B and LF type A and B for all patients could be made.

4. Weight loss and feeding tube use in elderly patients undergoing radiotherapy ± chemotherapy for head and neck cancer

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Rationale: Weight loss is common in patients with head and neck cancer and is typically attributed to treatment related toxicities. The potential effect of these toxicities in the elderly population can impact on the treatment pathway chosen by clinicians. We investigated the difference in percentage weight loss during radiotherapy (RT) ±chemotherapy, in elderly patients (≥65years) with head and neck cancer, and the need for feeding tubes.

Materials and methods: A retrospective review was conducted on all head and neck cancer (larynx, oropharynx, nasopharynx, hypopharynx and oral cavity) patients from 2005-2017 who completed radiotherapy ± chemotherapy in our institution. Patients were dichotomised by age to compare those ≥65 years to <65years. Clinical characteristics and treatment modalities were compared within each group in relation to weight loss and feeding tube use. The incidence and predictors of critical weight loss (CWL), defined as ≥5% loss, were investigated using logistic regression.

Results: A cohort of 457 patients was analysed, 174 aged ≥65years. The main tumour sites in the elderly population were: larynx (41%) and oropharynx (29%). Those <65years experienced higher mean percentage weight loss during RT (4.9% vs 3.7%, p=0.015) compared to the older group and this continued to 3 months post. Highest mean percentage weight losses in the ≥65 group were in the Nasopharynx (8.7%) and oropharynx (6.2%) sites. In patients who had concurrent chemoradiotherapy (CRT), there was no difference in mean percentage weight loss with age during treatment and up to 6 months post. Forty-seven percent of the elderly experienced CWL. No difference was found in the incidence of CWL with age and treatment modality. Feeding tubes were used in a higher proportion of patients <65 years (42% vs 37%). Forty-three percent of the elderly group required reactive feeding and 77% of elderly patients who had CRT, needed a feeding tube. Requiring a reactive feeding tube was a predictor of CWL in the ≥65 years group (OR 9, 95%CI 2-41, p=0.004).

Conclusions: Elderly patients with head and neck cancer experience similar weight loss during RT to younger patients. The number of patients experiencing CWL is clinically high and is more likely in patients who require reactive tube feeding due to toxicities. Intensive nutrtitional support for all patients with head and neck cancer is needed to limit weight loss, regardless of age.

5. Major oncologic surgery in elderly patients with head and neck cancer: the role of the Charlson Comorbidity Index in predicting surgical outcomes and oncologic prognosis

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Rationale: Life expectancy is increasing worldwide, leading to a progressive expansion of the proportion of ‘‘elderly” people. Decision making in aged people with head and neck malignancies is challenging, and it should differentiate the ‘‘chronologic’’ age from the ‘‘biological’’ age, and focus the “frailty”, considering performance status, comorbidities, geriatric syndromes and a history of tobacco and alcohol abuse. Our study evaluates whenever the Charlson Comorbidity Index can predict surgical outcomes and oncologic prognosis in elderly people with head and neck malignancies.

Materials and methods: Two hundred eighty-two patients (237 males and 45 females) aged of 65 years or older underwent major surgery for head and neck cancer in the Department of Otorhinolaryngology of the University Hospital of Cagliari, Italy, from January 2005 to November 2016. Preoperative comorbidities were evaluated with the Charlson Comorbidity Index. Comorbidities were correlated to the incidence of medical and surgical complications, and oncologic outcomes.

Results: One hundred forty-seven patients (52%) presented a Charlson Index score ≤ 5, and 135 (48%) presented a score between 6 and 9. One hundred sixty-one patients (57.1%) were aged between 65 and 74 years, and 121 (42.9%) were older than 75. Fifty-seven patients experienced postoperative complications, and required in 37 cases a surgical treatment. Twenty-one complications (14.3%) occurred in patients scoring ≤ 5, and 36 (26.7%) in those with a score between 6 and 9. Thirty-two complications (19.9%) occurred in patients of 65-74-year-old, and 25 (20.7%) in patients older than 75 years. Five-years disease-specific survival, overall survival and disease-free survival were 76.4%, 54.7%% and 58% in all patients, 81.2%, 61.5% and 62.9% vs. 68.4%, 44.2% and 54.6% in patients with Charlson Index score ≤ 5 and between 6-9 respectively, 79.6%, 62.5% and 61.9% vs. 71%, 36.6% and 58% in patients aged between 65 and 74 years and older than 75 respectively. Age alone was not associated with worse outcomes ($p=0.9$), while a Charlson Index > 5 is associated with statistically significant higher complications rates ($p<0.02$).

Conclusions: Charlson Comorbidity Index seems to be effective in predicting surgical and oncologic outcomes. Elderly patients with advanced head and neck malignancies with low Charlson Index score should undergo the same treatments as younger patients.

6. Long-term swallowing function, complications and quality of life after supracricoid laryngectomy

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Rationale: Supracricoid laryngectomies (SCLs) are considered optimal therapeutic options for selected cases of laryngeal cancers, with both successful oncological and functional outcomes. Swallowing rehabilitation is the most difficult to achieve: all the patients experience some degree of postoperative aspiration, but most of them are able to recover an unrestricted oral diet. Chronic aspiration has been detected in a significant portion of operated patients, and there are some concerns about possible long-term effects on ageing patients.

Materials and methods: We selected a cohort of 39 patients who recovered successful swallowing function after SCLs, free of disease after a minimum 3-years follow-up period. They were investigated both clinically and instrumentally for the presence of chronic aspiration, possible factors influencing prevalence of aspiration, incidence of pulmonary complications and dysphagia-related quality of life.

Results: Aspiration was clinically demonstrated on 33.3% of our patients, while 35.9% of them aspirated at FEES. We found a statistically significant correlation between age at surgery and prevalence of chronic aspiration, and a trend toward correlation between number of resected arytenoids and aspiration. Type of surgical procedure, rehabilitation after discharge with a speech-and-language therapist, radiotherapy, age at consultation and length of follow-up were not related to long-term aspiration. Pulmonary complications affected 5 patients. All of them were chronically aspirating; a statistically significant correlation was found between incidence of pulmonary complications and poor laryngeal sensation/cough reflex detected ad FEES. No correlation was found with increasing age, number of smoked pack/years and systemic comorbidities. Aspiration was found to negatively affect dysphagia-related quality of life at MDADI.

Conclusions: Aspiration is quite frequent after SCLs, but incidence of pulmonary complications is much lower. In our cohort, prevalence of long-term aspiration was related to age at surgery, but not to age at consultation or duration of follow-up. However incidence of complications was not related to increasing age of patients, so aspiration itself should not contraindicate normal oral feeding, even in elderly patients. Preservation of laryngeal sensation and cough reflex is mandatory to achieve a better rehabilitation and to reduce long-term pulmonary complications.

7. CHA2DS2-VASc in prediction of major cardiac and cerebrovascular events in HNC patients

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Rationale: In head and neck cancer (HNC) surgery the risk of major adverse cardiac and cerebrovascular events (MACCE) is high (>5%). Prediction of those adverse events is important to enable lower morbidity and mortality during cancer care and follow up. This retrospective study compared the ability of CHA2DS2-VASc score in respect of ASA-classification to predict MACCE.

Materials and methods: Study population was all head and neck cancer patients treated with operative intervention in Turku University Hospital between 1999-2008 (n=456). Performance of CHA2DS2-VASc score was evaluated compared to ASA-classification in prediction of MACCE. High risk threshold was set for ASA ?3 and for CHA2DS2-VASc ?2for male and ?3 for female.

Results: High MACCE risk was identified with ASA and CHA2DS2-VASc in 47%, and 37% of patients. With the high risk threshold CHA2DS2-VASc predicted 30d MACCE (1.7% vs. 9.4%, p=0.001) and MACCE in 5-year follow-up (p=0.004), ASA predicted MACCE in 30d (1.3% vs. 8.4%, p=0.002) but not in 5-year follow up (p=0.159). The sensitivity of CHA2DS2-VASc score was higher in prediction of 30d MACCE after operation.

Conclusions: Preoperative use of CHA2DS2-VASc beside to traditional ASA-classification improves the identification of patients at high risk for MACCE and would help physicians in treatment planning and optimization of peri- and postoperative care.

8. How the operated larynx ages

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Rationale: Open partial horizontal laryngectomies (OPHL) have become established as a viable surgical option, primary or salvage, for the treatment of laryngeal cancer in its intermediate stage. Many authors have reported data relating to complications and, in particular, chronic aspiration of food and aspiration pneumonia (AP).

Overall, OPHLs have demonstrated the possibility to obtain a high rate of 5–10 years local/regional control of disease. It is therefore logical to assume that there is now the opportunity to observe a population of elderly patients, cured of laryngeal cancer, and who have experienced aging with an operated larynx.

The study's aim was to evaluate laryngeal functional outcome at least 10 years after surgery in a cohort of elderly patients, looking for a possible statistically significant correlation between amount of resection and grade of impairment of some swallowing and phonatory parameters detected by self-evaluation and accurate functional tests.

Materials and methods: A retrospective cohort study was carried out on a group of 80 elderly patients (age >70 years) who underwent OPHL at least 10 years earlier, focusing on swallowing and phonatory results. Laryngeal function analysis was performed using objective and subjective methods, comparing data on episodes of AP occurring during the follow-up period. Then a comparison was made with literature data on swallowing impairment in elderly subjects who had not undergone any laryngeal surgery, dysfunctions being considered to be an expression of the physiological aging of the larynx.

Results: Eight patients experienced AP including four with repeated episodes. A statistically significant association was observed between AP and severity of dysphagia ($p<0.001$). Dysphagia was more pronounced than in a normal population of similar age but less than would be expected. There was a significant association between type of intervention and grade of dysphagia/dysphonia; a difference in voice handicap was found, depending on the extent of glottic resection.

Conclusions: After OPHL, laryngeal function is impaired but this does not significantly affect quality of life. AP is more frequent in the initial post-operative period, decreasing in subsequent years.

9. Treatment and Outcome of Advanced External Auditory Canal and Middle Ear malignant tumors

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Rationale: The recommended therapeutic strategy in advanced ear cancer consists of surgical excision and postoperative radiotherapy. The purpose of this study was to evaluate the complications and oncologic outcomes of patients treated by surgery, intraoperative radiotherapy (IORT) and combined image modulated radiotherapy (IMRT) in locally advanced ear cancer.

Materials and methods: 79 consecutive patients with locally advanced ear cancer treated between January 2002 and February 2016 were retrospectively evaluated.

Pathologic tumor stage according to the “modified” Pittsburg staging system was: Stage II in 17 cases, all T2; Stage III in 35 cases, 1 T1N1 and 34 T3 N0; Stage IV in 27 cases, 1 T2N1, 1 T2N2b, 3 T3N1, 15 T3N2b, 5 T4N0, 2 T4N2b.Nodal metastasis were present in 23 cases (29.1%)of elective ND. IORT was used in 13 cases. Post-operative adjuvant radiotherapy was delivered in 31 cases, while concurrent chemo-radiotherapy in 18 cases.

Results: Overall survival, disease specific survival and recurrence free survival for the all cases were 39.3%, 52.3%, 48.3%, respectively. Survivals for each histotype were also calculated. Prognostic factors for recurrence and survival were analyzed using uni and multivariate analysis.

Conclusions: Advanced external auditory canal and middle ear malignancies are rare. Treatment options include surgery and radiotherapy. Radical resection of the primary followed by radiotherapy may allow good prognosis in early stages. IORT seems to maximize the results of radiation therapy reducing side effects.