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Early stage hypopharyngeal cancer: treatment outcome and treatment strategy

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Purpose or Objective: Hypopharyngeal squamous cell carcinoma (HPSCC) is rarely diagnosed in early stage due to the nonspecific nature of early symptoms. Since its rarity, few reports regarding the treatment outcome are available and the most optimal treatment for early stage HPSCC has not yet been clarified. We assessed patterns of failure and factors that influence failures.

Material and Methods: total of 36 patients with pathologically confirmed stage I (n = 10) and II (n = 26) treated between January 1992 and March 2014 were retrospectively reviewed. Ten patients (28%) received definitive RT delivered with a median fraction dose 2.1 Gy(range, 1.8–2.3 Gy) to median total dose 69.1 Gy (range, 60.8–70.2 Gy) (R group). Nineteen patients (53%) underwent surgery only (S group). Seven patients (19%) treated with surgery followed by postoperative RT with a median fraction dose of 1.8 Gy (range 1.8–2.3 Gy) to median total dose was 63.0 Gy (range, 54.0–66.6 Gy) (PORT group). Twenty-six patients received surgery included mass excision/partial pharyngectomy (n = 20), total laryngectomy with partial pharyngectomy (n = 4), and total pharyngolaryngectomy (n = 2). Additionally, 4 of S group had no elective neck node dissection, seven patients had ipsilateral and eight patients had bilateral dissection. All of 10 patients in the R group and in the PORT group received elective bilateral neck irradiation.

Results: At a median follow-up of 48 months, the 5-year locoregional control rate (LRC) was 65%. Of the 36 patients, 5 patients had local failure (LF), one had regional failure (RF), three had combined locoregional failure (LRF) and two had distant failure. No differences were observed in the 5-year LRC among three groups (R, S, and PORT = 67%, 52%, and 100%;, *P* = 0.17). In the RT group, 3 patients experienced LF without RF. In the S group, 7 patients experienced LRF; 2 LF, 1 RF, and 3 combined LRF. There was no LRF in the PORT group though resection margin status of patients in the PORT group were more risky than in the S group (Close/Positive margin 85% vs. 32%; *P* = 0.03) Patients with pyriform sinus apex extension showed a trend toward lower LRC (38% vs. 76%; *P* = 0.09). Patients with bilaterally treated neck (Treated neck group) showed lower trend of RF rate (4% vs. 27%; *P*= 0.08). Of the 10 patients who experienced LRF, 9 patients were successfully salvaged and 5-yr LRC after salvage treatment was 80%. Although late events of gastrostomy or tracheostomy were observed in 8 patients; 2 patients in the untreated or ipsilaterally treated neck group, 6 patients in the treated neck group (18% vs. 24%; *P* = 0.70)

Conclusion: Multimodal approach achieved favorable locoregional disease control despite of the risk factor. There is no difference in LRC between R group and S group. Prophylactic treatment of lymph nodes in the neck improves regional control in selected early HPSCC. Future research in the significance of tumor extension and elective neck treatment will be necessary to define the optimal treatment.

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The usefulness of 18F-FDG PET and PET-based considerations in locally advanced nasopharyngeal cancer

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Purpose or Objective: We investigated 18F-fluorodeoxyglucose positron emission tomography (PET)-derived parameters as prognostic indices for disease progression and survival in locally advanced nasopharyngeal carcinoma (NPC) and the effect of high-dose radiotherapy for a subpopulation with PET-based poor prognoses.

Material and Methods: Ninety-seven stage III and IVa-b NPC patients who underwent definitive treatment and PET were reviewed. For each primary, nodal and whole tumor, maximum standardized uptake value, metabolic tumor volume, and total lesion glycolysis (TLG) were evaluated. The primary endpoint was progression-free survival (PFS). PFS was calculated from the treatment start date to the date of disease progression, relapse, death from any cause, or last contact. Overall actuarial survival (OS) was calculated from the treatment start date to the date of death or the last follow-up. PFS and OS were calculated using the Kaplan-Meier method. The Contal and O'Quigley method was performed to determine the cut-off value for the most useful PET parameter from the C-index and iAUC to allow for dichotomization in an objective manner.

Results: The median follow-up duration among surviving patients was 47 months (range, 8–127). Based on the C-index (0.666) and iAUC (0.669), the whole tumor TLG was the most useful predictor for progression-free survival (PFS); the whole tumor TLG cut-off value showing the best predictive performance was 322.7. The low-whole tumor TLG group showed significantly higher 5-year PFS (77.0% vs. 43.0%, P < 0.001), overall survival (OS) (85.7% vs. 54.0%, P = 0.003), loco-regional failure free survival (77.0% vs. 49.1%, P = 0.001) and distant-failure free survival (81.6% vs. 60.3%, P = 0.012) rates than the high-whole tumor TLG group. The whole tumor TLG was one of the significant prognostic factors for PFS (HR, 0.29; 95% CI, 0.13–0.64; P = 0.002) and OS (HR, 0.29; 95% CI, 0.11–0.79; P = 0.02) in multivariate analysis. Patients with low-whole tumor TLG showed higher 5-year PFS in the subgroup for only patients receiving intensity-modulated radiotherapy (77.4% vs. 53.0%, P = 0.01). In the subgroup of patients with high-whole tumor TLG, patients receiving an EQD2 ≥70 Gy showed significantly greater complete remission (71.4% vs. 33.3%, P = 0.03) and higher 5-year OS rates (74.7% vs. 19.6%, P = 0.02).

Conclusion: Our findings demonstrated that the whole tumor TLG could be an independent prognostic factor and high-dose radiotherapy could improve outcomes for NPC showing high whole tumor TLG.

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Circulating cell free DNA: dynamics in patients with head and neck cancer during radiochemotherapy

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Purpose or Objective: The analysis of circulating cell free DNA (cfDNA) in plasma samples of cancer patients ('liquid biopsy') is an upcoming option in detecting cancer characteristics, dynamics, prognosis and recurrence. Combining quantitative analysis, genetic information and clinical data appears as a promising tool in personalised medicine.

Material and Methods: In a prospective pilot study a total of 9 patients with head and neck cancer (median age 64.7 years) receiving primary radiochemotherapy were analysed regarding cfDNA dynamics and genetic alterations. Blood samples were taken prior to therapy, during therapy (week 1,4,6) and 6 weeks after end of treatment.