

Purpose or Objective

Use of radiotherapy combined with chemotherapy is increasing in hypopharyngeal cancer. However, many show residual tumor after radiotherapy. Timing for treatment evaluation and salvage therapy is essential. However, optimal timing for salvage surgery has not been suggested. In this study, we tried to evaluate optimal timing for tumor response assessment.

Material and Methods

Patients who were diagnosed with hypopharyngeal squamous cell carcinoma between 2006 and 2015 were retrospectively analyzed. All patients received definitive radiotherapy with or without chemotherapy. Response of all treated patients were analyzed at 1, 3, and 6 months after radiotherapy. Any patients with progression before 6 months were excluded.

Results

A total of 54 patients were analyzed. Complete remission (CR) rates at 1 month (CR1), 3 months (CR3) and 6 months (CR6) were 66.7%, 81.5% and 90.7%, respectively. Non-CR at 1 month (NCR1), 3 months (NCR3), and 6 months (NCR6) showed poor locoregional recurrence-free survival rates (1-year rates of 63.7%, 66.7% and 0.0%, respectively) compared to CR1, CR3 and CR6 (1-year rates 94.3%, 88.0% and 91.5%, respectively). Particularly significant differences were seen between CR6 and NCR6 ($p < 0.001$). Of 10 patients with NCR3, 5 showed CR at 6 months (NCR3/CR6). There was no statistical difference in locoregional recurrence-free survival between CR3 and NCR3/CR6 group ($p = 0.990$).

Conclusion

Our data suggest half of patients who did not show CR at 3 months eventually achieved CR at 6 months. Waiting until 6 months after radiotherapy may be appropriate for avoiding additional salvage therapy.

EP-1167 Sparing of high retropharyngeal lymph node irradiation in patients with oropharyngeal carcinoma

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Purpose or Objective

In radiotherapy for head and neck cancer, it is very important to define the appropriate treatment volumes that determine the treatment outcome and toxicity. We examined the feasibility of omitting elective retropharyngeal (RP) nodal irradiation in oropharyngeal cancer.

Material and Methods

We performed a retrospective review from 2009 to 2016; 197 patients with oropharyngeal squamous cell carcinomas were treated with definitive or postoperative radiation therapy at the Seoul National University Hospital or Seoul National University Bundang Hospital. Of these patients, 151 patients (76.6%) were treated ipsilateral RP nodal areas up to the upper edge of C1 vertebral body, while the other 46 patients (23.4%) were not. We reviewed patterns of failures, disease free survival, and patient-reported chronic xerostomia status in each patient group.

Results

During follow-up period, two patients developed RP nodal recurrences (4-108 months, median =46 months). There was no RP nodal recurrences in patients with a distance >1cm from gross tumor volume (GTV) to high RP nodal areas. There was no significant between-group difference in disease free survival, with a rate of 80.7% in the high RP nodal-irradiation group and 87.2% in the RP nodal spared group ($P=0.22$). Patients in the high RP nodal-irradiation group had higher mean ipsilateral parotid gland dose (mean 28.7Gy vs 21.3Gy, $P<0.001$) and higher rates of chronic xerostomia (72.2% vs. 58.7%, $P=0.03$).

Conclusion

Omission of ipsilateral high RP irradiation in oropharyngeal squamous cell carcinoma patients seems safe and improves the patients' quality of life, especially for xerostomia.

EP-1168 Early radiation induced changes in salivary glands in nasopharyngeal cancer patients after IMRT

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Purpose or Objective

Parotid and submandibular glands are the main source of saliva. Both glands are irradiated to high dose by radical external beam radiotherapy (EBRT) in nasopharyngeal cancer (NPC) patients. Xerostomia is one of the common radiation induced complications in NPC patients caused by damaged of parotid and submandibular glands after RT. Persistent xerostomia causes difficulties in mastication and swallowing and enhances the risks of dental problems. The aims of this study were to assess the changes of the salivary glands after 6 months of post-RT using magnetic resonance imaging (MRI), ultrasonography (US), saliva flow rate and contents.

Material and Methods

25 NPC patients with stage I to III (UICC) treated by routine EBRT using 6 MV 9-field intensity modulated radiotherapy and with no previous history of salivary glands disorder were recruited. Each subject underwent US and MRI examinations, saliva test before the start of radiotherapy (RT) and at 6 months after RT. The US assessment was conducted by the same operator in which the haemodynamics including the blood flow velocity and vascular resistance of the salivary glands were measured. The MRI, which was performed using T1 and T2 axial and sagittal scans with slice thickness of 3 mm, provided the salivary glands' morphological information. The saliva test included the measurement of mean saliva flow rate (SFR) and the main contents of the saliva including alpha-amylase and immunoglobulin A (IgA). The mean values of each measured parameters were calculated and paired t-test was conducted to assess their differences between the two time intervals.

Results

The mean volumes of parotid and submandibular glands were significantly reduced by about 30% at 6-month after RT ($p < 0.001$). The two glands also demonstrated lower vascular velocity, resistive and pulsatility indices ($p < 0.05$) when compared to the pre-RT condition. This indicated that the blood flow in the post-RT glands was slower and the blood vessels experienced lower pressure than those of the pre-RT. In addition, the post-RT mean SFR was reduced by more than 9 times when compared with that in pre-RT ($p < 0.001$). The levels of the salivary alpha amylase and IgA were also significantly reduced at the 6-month post-RT interval.

Conclusion

Our study demonstrated that there were substantive impacts on the physiological and morphological aspects of the salivary glands after radical EBRT in NPC patients. The side effects were relatively early in which most measured parameters demonstrated significant changes at 6-month post-RT interval.