Conclusion: 18F-FDG PET/CT is useful to target volumes delineation for radiotherapy planning, allowing a clear definition of GTV, not detected with 131I WBS. Disease response and local control justify future prospective studies.

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Long-term quality of life and second tumours in T1N0 glottic cancer treated with radical radiotherapy

R. Benlloch Rodríguez[1], J. Romero Fernandez[1], D. Rincón Cruz[1], G. Martín Hernández[2], J.R. García-Berrocal[3], B. Vaquero Barrón[1], I. Zapata Paz[1], O. Alvarez montero[3], S. Gonzalo Ruiz[1], A. De la Torre Tomas[1]
[1]*Hospital Universitario Puerta de Hierro, Radiation Oncology, Madrid, Spain*
[2]*Complejo Asistencial de Ávila, Radiation Oncology, Ávila, Spain*
[3]*Hospital Universitario Puerta de Hierro, Otolaringology, Madrid, Spain*

Purpose or Objective: To evaluate long-term results, prognostic factors, quality of life (QoL) and voice and thyroid toxicity and risk of second tumors in T1N0M0 glottic carcinoma.

Material and Methods: A total of 100 patients with stage T1N0M0 histologically proven squamous cell glottic carcinoma treated between 2000 and 2012 were retrospectively analyzed. Mean age: 62.14 years; 90 males, 10 female; stage: T1a:80, T1b:20. Treatment: radical external radiotherapy with a mean dose of 70 Gy (2Gy/fraction). Statistical analysis: Kaplan-Meier method and Chi-square test. In 35 patients, we prospectively evaluated the Voice Handicap Index (VHI 30) and the QoL with (EORTC)-QLQ C30 questionnaire and organ-specific EORTC-Head & Neck-35 module. In the functional and QoL scales of the QLQ C30 questionnaire a higher score represent better functioning and quality of life, whereas in symptoms scales of both questionnaires a high score implies a higher level of symptoms. The last two questions in QLQ C30 represents a QoL scale ranging from 1 ("very poor") to 7 ("excellent"). Blood determination of TSH, T4, T3 levels was performed in 19 patients. Second primary tumors were defined as those originated outside the head and neck area.

Results: Median follow-up: 91.5 months. Five-and 10-year actuarial OS and disease free survival were 83% and 70%, and 70% and 57% respectively. Five- and 10-year actuarial LC and metastasis free survival were 84% and 77%, and 97% and 94% respectively. Eighteen patients had recurrent disease. Mean time to local recurrence was 80 months. Sex, stage, grade and Overall Treatment Time were not statistically significant prognostic factors. Mean score (MS) for the VHI30 was 19.16, which is considered as a minimal amount of voice handicap. Patients reported excellent QoL in the C30 questionnaire which showed functional scores above 93 and symptoms scores below 14. The global health status and QoL scale were 5.93 and 6, respectively, which should be considered as "good" or "very good". In the H&N 35 questionnaire the worse scores were dry mouth and thick saliva (MS 30.6 for both). Most patients have no problems in open mouth, swallowing, speaking and social contact (MS of 0, 6.9, 18.6 and 16.6, respectively). There were no patients with clinical or subclinical hypothyroidism. Mean TSH, T3, and T4 were 2.32, 3.16 and 1.31, respectively. Mean TSH was not statistically different from normal values (P: 0.34) Eighteen patients (18%) had second tumors: 11 lungs, 2 prostates, 5 others. Ten years probability of second lung cancer was 28%.

Conclusion: In our series radical radiotherapy for T1 glottic cancer was well tolerated and achieved excellent tumor control comparable to surgery. In our opinion radical radiotherapy should be the standard treatment of these patients given the excellent results in QoL and voice preservation. The high probability of second lung cancer could justify performing thoracic CT scan during follow-up.

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Treatment outcome of induction bio-chemotherapy followed by IMRT in advanced NPC patients

P.J. Lin[1], W.Y. Wang[2], Y.C. Liu[3], J.C. Lin[3]
[1]*Tung's Taichung MetroHarbor Hospital, Department of Radiation Oncology, Taichung, Taiwan*
[2]*Hung Kuang University, Department of Nursing, Taichung, Taiwan*
[3]*Taichung Veterans General Hospital, Department of Radiation Oncology, Taichung, Taiwan*

Purpose or Objective: We investigated the treatment outcome of induction bio-chemotherapy followed by IMRT for advanced nasopharyngeal carcinoma (NPC) and the prognostic impact of plasma EBV DNA viral load.

Material and Methods: Forty-two NPC patients with previously untreated, stage III/IV received induction chemotherapy of weekly P-FL (cisplatin 60 mg/m2 d1, [5-fluorouracil 2500 mg/m2 + leucovorin 250 mg/m2] d8) ± docetaxel 50 mg/m2 or gemcitabine 1000 mg/m2 d15, for 10-12 weeks and concurrent Cetuximab 400 mg/m2 day 1, then weekly 250 mg/m2. Conventional (70 Gy/35fr) or hyperfractionated (76.4 Gy/64fr for T4 tumor) RT were delivered by IMRT technique. Plasma EBV DNA levels were measured before, during and after treatment regularly.

Results: Baseline characteristics are median age=44; male/female=28/14; performance status ECOG 0/1=13/12; stage III/IV=22/20, and pathological type (WHO) IIa/IIb=20/22. Each patient received a mean of 11 weekly cetuximab. During induction bio-chemotherapy period, cetuximb-associated toxicity included 100% skin rashes (grade 50% III/IV), 64.3% (27/42) dry skin, 52.4% (22/42) paronychia, and 28.6% (12/42) hypomagnesia. Grade III/IV conventional toxicities were rare (11.9% leucopenia, 9.5% anemia, 2.4% thrombocytopenia, and 2.4% mucositis). Response after induction bio-chemotherapy revealed 50% CR and 50% PR. After a median follow-up of 24 months, there were 1 local, 1 regional, and 5 distant failures. The 3-year local failure-free, neck failure-free, distant metastasis failure-free (DMFS), progression-free survival (PFS), and overall survivals (OS) were 96.6%, 96.0%, 87.4%, 79.9%, and 92.1% respectively. Patients with high pretreatment plasma EBV DNA predict significantly lower PFS and DMFS (P=0.0108 and P=0.004) but not OS (P=0.6291). Patients with detectable plasma EBV DNA after bio-chemotherapy had a significantly lower OS, PFS, and DMFS (P=0.0294, P=0.0078, and P=0.0082). Patients with persistently detectable plasma EBV DNA one week after IMRT predict a significantly lower PFS (P=0.0258).

Conclusion: Induction Bio-chemotherapy followed by IMRT is a highly effective protocol with very low toxicity in advanced NPC. Plasma EBV DNA monitoring are the most important prognostic factors in outcome prediction.

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Toxicity and clinical outcome for patients treated for advanced head and neck cancer with VMAT-SIB

E. Villa[1], C. Franzese[1], A. Fogliata[1], D. Franceschini[1], G.R. D'Agostino[1], E. Clerici[1], P. Navarria[1], T. Comito[1], F. De Rose[1], C. Iftode[1], A.M. Ascolese[1], A. Tozzi[1], R.L.E. Liardo[1], P. Mancosu[1], M. Scorsetti[1]
[1]*Istituto Clinico Humanitas, Radiotherapy and Radiosurgery, Rozzano Milan, Italy*

Purpose or Objective: The choice of fractionation scheme in radiotherapy of head and neck cancer (HNC) is still debated. In fact it is well known that a shorter overall treatment time and a dose escalation, may improve loco-regional control of disease by reducing cell repopulation. Nevertheless, shortening overall treatment time can result in worse acute toxicity.Volumetric modulated arc therapy (VMAT) with Simultaneous Integrated Boost (SIB), allowing hypofractionation with a better sparing of the organs at risk, has showed promising results in terms of outcome and pattern of toxicity.In this study we retrospectively analyzed a series of patients with stage III-IV HNC treated with VMAT-SIB