THERMORADIOThERAPY AND RADIOCHEMOTHERAPY OF LOCALLy ADVANCED LARYNX CANCER WITH LYMPH NODES METASTASES

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Introduction. Patients with advanced larynx cancer (stage III-IV with lymph nodes metastases) have a dismal prognosis. Radiation therapy (RT) alone led to limited response and survival rates with majority of patients dying of locoregional recurrence. That’s why a number of alternative approaches were designed to increase the radiation effect.

Purpose of the study. To compare efficiency and toxicity of thermoradiotherapy and chemoradiotherapy at patients with stage III-IV of squamous cell larynx cancer with involved lymph nodes (T3-4N1-3).

Materials and method. From September 1994 to March 2001, eighty eight patients were included into a prospective non-randomized study, 76 of them completed the treatment (median age 56 years; 30.3% stage III tumors; 69.7% stage IV tumors; 75% supraglottic larynx; 25% glottic larynx). In the first group, 34 patients underwent a split-course of conventional radiation therapy up to total dose 68-70 Gy. In the second group, 42 patients were performed RT and 6-9 sessions of local microwave hyperthermia (HT). Heat was delivered for an hour up to 41.50-430C in the tumor before irradiation (915 MHz, 45-50 Wt).

From December 2002 to April 2006, thirty seven patients were enrolled, 29 of them completed the course (median age 61 year; 24.1% stage III tumors; 75.9% stage IV tumors). The treatment protocol in the third group (16 patients) consisted of three courses of chemotherapy (5-FU+cisplatin) given in the 1st, 5th and 11th week and conventional split radiation therapy (6-9 and 12-14 weeks). In the forth group (13 patients), besides, patients were performed 6-8 sessions of local hyperthermia. Adverse events (skin and mucosal toxicity, dysphagia, xerostomia and hematological toxicity) were scored according to RTOG\EORTC criteria.

Results. One-years overall survival (OS) was 53.1% and 67.5%, 3-years OS – 12.5% and 35%, 5-years 9.4% and 25%, 10-years – 6.3% and 16.7% in RT and RT-HT group, respectively (Fig.1). Median survival was 12.9 months and 20.4 months. There was a statistically evident benefit for RT-HT vs RT patients (0.0270). Patients in local hyperthermia group demonstrated non-significant increase of grade 3+4 mucositis, dysphagia, skin and soft tissue toxicity (p=0.067). Hematological toxicity was low and identical in both groups.

One-years OS of patients, who underwent chemoradiotherapy, was 75%, 3-years – 38.1% with MS 18.6 months (Fig.2). In CRT-HT group, one- and three-years survival was 72.2% and 16.2%, respectively with median survival 16.2 months without any difference between the groups (p=0.8835). Patients treated with chemoradiotherapy and local hyperthermia more often developed grade 3+4 mucositis (45.5% vs 28%, p=0.0271) and dysphagia (41.6% vs 24.1%, p=0.0433) compared to those with chemoradiotherapy alone. Stage 2-4 anemia developed in 43% and 25% cases (p=0.004), respectively.

Conclusions: Thermoradiotherapy and radiochemotherapy are of equal efficiency in case of advanced larynx cancer, but thermoradiotherapy doesn’t cause hematological toxicity. Thermoradiochemotherapy significantly increases toxicity of the treatment without any therapeutic benefit.