**Involved-Field Irradiation vs Elective Nodal Irradiation for Locally Advanced Thoracic Esophageal Squamous Cell Carcinoma: A Comparative Interim Analysis of Clinical Outcomes and Toxicities**

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**Purpose/Objective(s):** Elective nodal irradiation (ENI) and involved-field irradiation (IFI) are definitive radiotherapeutic approaches used to treat patients with locally advanced thoracic esophageal squamous cell carcinoma (ESCC). The necessity of ENI has always been controversial. The aim of this study was to compare the failure patterns, survivals, and toxicities in locally advanced thoracic ESCC treated with ENI and IFI.

**Materials/Methods:** A prospective, multicenter, randomized controlled clinical trial was conducted. Eligible patients were newly diagnosed, untreated, inoperable stages II-III ESCC. Patients were treated with concurrent chemoradiotherapy and randomized into either an IFI or ENI group. The CTV of regional lymph node (CTVn) of IFI included the nodal region(s) in which the involved lymph node(s) was/were located. The CTVn of ENI included the involved lymph node regions and clinically uninvolved lymph nodal stations according to the location of primary tumor. IGRT was delivered in once-daily fractions of 1.8-2 Gy to a total dose of 60-66 Gy to the GTV and 50-54 Gy to the CTV. Patients received docetaxel (75 mg/m2 on day 1)/CDDP (25 mg/m2 on day 1-3) every 21 days for four cycles. The primary end point was loco-regional lymph nodal recurrence. The secondary end points were distant failure, overall survival (OS), and toxicities.

**Results:** Between April 2012 and November 2014, a total of 110 patients were enrolled from nine centers in China. Patients were randomly divided into ENI group (n=56) and IFI group (n=54). At a median follow-up of 20 months, no significant differences were observed in loco-regional lymph nodal recurrence (17.9% vs 20.4%, P=0.819), distant failure (12.5% vs. 13.0%, P= 0.465), 1-year OS rates (89.2% vs 88.3%, P=0.431) and 2-year OS rates (64.2% vs 55.6%, P=0.857) between the ENI group and the IFI group. The main pattern of loco-regional lymph nodal failure was in-field lymph node failure (12.5% for group ENI vs 13.0% for group IFI, P=0.713), while the out-field lymph node failure was rare (5.4% for group ENI vs 7.4% for group IFI, P=0.335). Grade≥2 radiation pneumonitis and radiation esophagitis in the IFI group were significantly lower than that of the ENI group (12.9% vs. 26.8%, P=0.011; and 20.4% vs. 37.5%, P=0.001).

**Conclusion:** When compared to ENI, the radiation pneumonitis and radiation esophagitis of IFI were significantly decreased, while the loco-regional lymph nodal recurrence rates and distant failure rates were not increased. There were no significant differences in 1-, and 2-year overall survival rates between the two groups. IFI is an effective treatment with acceptable toxicity for thoracic ESCC.