

2464 Evaluation of Stabilization Strategies in Head and Neck Patients Utilizing Cone Beam CT Data

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Purpose/Objective(s): IMRT is the accepted standard radiotherapy treatment for curative head and neck cancers. The accuracy of patient positioning throughout a course of IMRT is crucial due to the potentially significant dosimetric impact of minor set up variations on the target volumes and critical structures. Deformation/movement of the shoulder complex may have significant impact on the delivered dose particularly when IMRT is utilized to treat the entire target volume without junctions. A study was designed to determine the clinical efficacy of implementing a new method of stabilization by comparing the deformational movement in the shoulder complex.

Materials/Methods: Ten patients were stabilized using the standard department immobilization strategy consisting of a customized head and neck support with a Civco IMRT Reinforced head and neck thermoplastic mask. Ten patients were stabilized using an extensive body cradle extending below the level of the olecranon processes and encompassing the upper arms and shoulders together with the mask. Daily Cone Beam CTs using an Elekta Synergy Linear Accelerator were acquired and analyzed with respect to distortional shoulder movement. VOI was placed around the shoulder complex and displacement figures calculated using the automated bony match algorithm. Daily distortional residual error was then calculated with reference to a standard VOI placed around upper cervical vertebrae (C1–4), by subtracting the x,y,z co-ordinates of the shoulder to the reference. Distortional statistics were then summarized.

Results: A total of 600 data sets were analyzed. There was considerable distortional movement of the shoulder seen with standard immobilization left/right 0.28 cm mean \pm 0.29 cm SD (range, -0.11–1.10 cm) superior/inferior 0.92cm mean \pm 0.64cm SD (range, -0.08 to 1.90) anterior/posterior 0.65cm mean \pm 0.48cm SD (range, -0.26 to 1.70). The displacement for the body cradle immobilization was left/right 0.19cm mean \pm 0.19cm SD (range, 0 to 0.50 cm) superior/inferior 0.19 mean \pm 0.16 SD (range, -0.08 to 0.57) anterior/posterior 0.20 mean \pm 0.15SD (range, -0.06 to 0.44).

Conclusions: In the context of IMRT head and neck plans it is imperative that accurate and reproducible patient immobilization strategies are employed and distortional set up variation is minimized throughout the entire course of treatment. Using a piecemeal co-registration method, we were able to quantify the distortional movement of the shoulders. We demonstrated that there is a significant improvement in shoulder positioning utilizing the extended body cradle to fix the shoulders and elbows. Despite longer manufacturing time, need for high level of competence, we have elected to implement the individualized body cradle for selected head and neck IMRT patients.

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2465 The Evaluation of the Efficacy of Chemoradiotherapy(CRT) following Neo-adjuvant Treatment with Docetaxel(T)-Cisplatin(P) in Undifferentiated and Nonkeratinized Squamous Cell Carcinoma of the Nasopharynx - Phase IV Clinical Trial: A Turkish Oncology Group Study

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Purpose/Objective(s): To evaluate the efficacy of CRT following neoadjuvant docetaxel-cisplatin chemotherapy, in undifferentiated and non-keratinized squamous cell carcinoma of the nasopharynx a phase IV study was performed.

Materials/Methods: Patients aged over 18 years with a histologically confirmed diagnosis of non keratinized carcinoma of the nasopharynx, in stages any T N2-3M0 or T2b-T4N1M0 tumor were eligible for the study. Three cycles of P 75 mg/m² and T 75 mg/m² induction chemotherapy (CT) was followed by CRT consisting of 3 cycles of P 75 mg/m² on Days 1, 22 and 43 and 70 Gy radiotherapy in 7 weeks. Primary objective was response to chemoradiation, secondary objectives were locoregional control(LRC), disease free survival(DFS), survival(S), Freedom from distant metastasis(FFDM) and toxicity profile. Response rates were evaluated after 3 courses of induction CT and two months after completion of CRT. Toxicities related to chemotherapy and radiotherapy were also noted. Kaplan-Meier Survival analysis was used to calculate the survival rates.

Results: 57 patients from 11 centers were enrolled between October 2004 and September 2005. Four patients withdrew their consent and 2 patients with N0 neck excluded from response analysis, but remained in locoregional control, disease free survival, survival and metastasis free rates. The rates of complete response and partial response after CRT were 48.1% (n = 25) and 36.5% (n = 19), respectively. After median follow-up of 43.1 months (27.6–49.9 months) 3 year LRC, DFS, S and FFDM rates were 83%, 73.2%, 84.1 % and 88%, respectively. In the toxicity evaluations according to NCI-CTC in neo-adjuvant chemotherapy, 19 Grade 3 and 2 Grade 4 toxicities were observed. During CRT 36.8% Grade 3 mucositis and 17.8 hematological toxicity occurred. There was one death due to toxicity.

Conclusions: Induction cisplatin and docetaxel followed by CRT seems to be safe and effective approach in locally advanced non-keratinized nasopharyngeal carcinoma. However, these results should be confirmed in large prospective randomized trials.

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2466 Does Neck Dissection following Definitive Chemoradiation Improve Outcome of Locally Advanced Head and Neck Cancer?

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Purpose/Objective(s): The role of neck dissection (ND) following definitive chemoradiation for Stage III–IV head and neck cancers remains controversial. It is also not evident that addition of ND following chemoradiation improves the treatment outcome. In