salivary tissue. Radiation doses accumulated in submandibular glands much exceeded threshold doses of salivary tissue. This prospective study has been continued.

1043 POSTER

Role of Candida spp. in oral mucositis. Methods of correction

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More aggressive treatment regimes improve local control and survival of patients with locally-advanced head and neck cancer, but are usually associated with higher acute mucosal toxicity. Pathogenesis of mucositis is complex and involves the interaction of cellular, tissue, and oral environmental factors. The purpose of the work was to study the influence of Candida species on severity and frequency of mucositis in patients with head and neck cancer and to propose methods of prophylaxis.
Since October 2002 to November 2004, 64 patients with stage III-IV head and neck cancer were randomized for standard correction of mucositis (arm A), standard correction + klotrimasol (Kandid-solution for oral cavity®) (arm B), standard correction + Immunal® (arm C), standard correction + klotrimasol + Immunal (arm D). Immunal is an immuno preparation made from Echinacea purple. All of them were performed concurrent chemoradiation therapy. Quantity of colony-forming unit (CFU) of Candida species in oral cavity was estimated before treatment and after total dose 40 Gy. Mucosal toxicity was scored according to RTOG/EORTC criteria. Standard correction consisted from antibacterials, fungicides, processing of oral cavity by broth of chamomile.
In arm A (18 patients), Candida was isolated in 17.7% of patients before treatment and in 88.2% after the dose of 40 Gy. Average quantity of CFU was 281 and 5721, respectively ($p = 0.004$). In arm B (17 patients), Candida species were isolated in 18% and 23.5% cases, respectively. CFU was 194 vs 4275 ($p = 0.08$). In arm C (14 patients), Candida species were observed in 21.4% and 78.6% of patients. Average CFU quantity was 228 vs 4681 ($p = 0.07$). In arm D (15 patients), C.albicans was detected in 26.7% patients before treatment. After the dose of 40 Gy, all the patients were free from Candida in oral cavity.
Changes of microflora in oral cavity correlated with severity and frequency of acute mucosal reactions. Arm A developed 75.3% grade 3+4 mucositis, arm B – 68.8%, arm C – 63.6%, arm D – 18.2%. Arm A and D demonstrated significant difference ($p = 0.004$), differences between A and B ($p = 0.09$) A and C ($p = 0.07$) were non-significant.
Conclusion: Candida spp. of oral cavity play a great role in acute mucosal toxicity. Local correction of oral micro flora combined with immunomodulation significantly decreases severity and frequency of mucositis.

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Impact on radiation oncology department workload of daily IMRT treatments in patients with head and neck cancer: results from a comparative study

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Background: Notwithstanding a possible improvement in dose distribution, the general impression of intensity modulated radiotherapy (IMRT) is that it is labor intensive, requiring long treatment and planning times. This study evaluates the impact of this technology on the workload of a radiation oncology department through the following end points: daily and overall treatment time and total treatment preparation time (contouring, treatment planning, quality assurance (QA), mould room).
Materials & methods: Ten patients undergoing treatment with IMRT for head and neck tumors were compared to ten similar patients treated with a conventional technique. IMRT treatment was delivered with five to seven gantry angles (five to fourteen fields) dynamic delivery with a single plan. Doses ranged from 50–70 Gy in 25–33 fractions. Conventional patients were treated with a standard multi-phase plan including lateral opposed fields for upper neck, off-cord block, posterior neck node electrons, and a half blocked (single isocenter) lower anterior neck field. Dose consisted of 70 Gy in 35 fractions. Treatment time per patient was recorded daily for 5 days. Treatment planning data was obtained from two radiation oncologists, two physicists, four dosimetrists and the mould room technologist.
Results: Average daily treatment time for IMRT was 18min±2min and 9min±1min for conventional technique. Average overall treatment time for IMRT was 7.5hrs and 11hrs for 25 and 33 fractions respectively. The conventional technique averaged 6.5hrs for 35 fractions. Physicists required 4hrs for planning IMRT (inverse planning system) and 2hrs for QA leading to a total preparation time of 7.5hrs±1hr dependent on physician contouring time. Conventional technique required 10.2hrs to plan a typical 3-phase plan (2.75hrs±1.25hrs per plan depending on complexity of plan) (3D planning system) including 1hr mould room time needed to construct shielding for electron posterior neck fields. Weekly orthogonal check films were taken for all patients. All patients required aquaplast-orfit mask for immobilization.
Conclusion: The results of this study show that the overall treatment time is slightly to moderately longer (1.0–4.5hours) with IMRT but with a significant decrease in treatment preparation time (30%) versus the conventional technique. Therefore, the impact of IMRT on the overall workload of the department is modest making it a reasonable option for treating head and neck cancer.

	IMRT (70Gy/33)	IMRT (60Gy/25)	Conventional (70Gy/35)
Total Plans	1	1	3
Contouring time* (average)	0.5–2.5 hrs (1.5 hrs)	0.5–2.5 hrs (1.5 hrs)	0.05–0.5 hrs (.275 hrs)
Planning Time* (average)	4 hrs	4 hrs	1.5–4 hrs/plan (2.75 hrs)
QA*	2 hr	2 hr	0
Mould Room Time*	0	0	1 hr
Average treatment preparation time	7.5 hrs	7.5 hrs	10.2 hrs
Average Daily treatment time	18 min	18 min	9 min
Average overall treatment time	11 hrs	7.5 hrs	6.5 hrs (including 10 posterior neck electron treatments)
Average overall workload time	18.5hrs	15 hrs	16.7hrs

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Outcome and prognostic factors in olfactory neuroblastoma: a multicenter rare cancer network study

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Background: To define prognostic factors and patterns of failure in olfactory neuroblastoma.
Materials/Methods: Fifty-six patients treated for non-metastatic olfactory neuroblastoma in 13 European and American centers between 1971 and 2004 were included in this study. Median age was 50 years (range: 15–79), and male-to-female ratio was 29/27. Diagnostic work-up included CT-scan in 51 (91%), and MRI in 28 (50%) patients. According to Kadish classification, there were 7 (12%) stage A, 24 (43%) stage B, and 25 (45%) stage C patients. Forty-eight patients presented with N0 (86%) disease. Most ($n = 46$) benefited from surgery (S). Treatment consisted of a combination of S, radiation therapy (RT), and chemotherapy (CT) in 12 patients (21%), S+RT in 29 (52%), S alone in 5 (9%), RT+CT in 6 (11%), and RT alone in 4 (7%). Total excision was possible in 40/46 operated patients (28 R0, 12 R1, and 6 R2). All but 5 patients benefited from RT with a median dose of 60 Gy in median 2 Gy/fr (range: 1.6–2.5). RT was delivered using 2D-RT in 27 patients (48%), 3D-RT in 22 (39%), and intensity modulated RT (IMRT) in 2 (3%). PTV included the tumor bed in 44 (86%), and tumor bed and involved lymph nodes in 7 (14%) patients. Chemotherapy was given in 18 patients (32%). Median follow-up was 74 months (range: 7–314).
Results: Median time to locoregional progression was 27 months. Local progression was observed in 23 patients (41%), regional in 16 (29%), and distant metastases in 10 (18%). Causes of death included progression in 25, postoperative complications in 3, and intercurrent disease in 2 patients. The 5-year overall survival, disease-free survival (DFS), and locoregional control was 60%, 43%, and 53%; respectively. In univariate analyses, factors favorably influencing the DFS were T1-T3 disease vs.