

1272

INCIDENCE OF HYPOTHYROIDISM IN PATIENTS TREATED FOR HEAD AND NECK CANCER BY CONVENTIONAL RADIOTHERAPY  
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The incidence of hypothyroidism (HT) following conventional radiotherapy (RT) of 100 patients with head and neck cancers was evaluated in a prospective study for the period Nov. 1990 to June 1992. Tumor locations: epipharynx (4), oropharynx (24), oral (27), hypopharynx (7), larynx (20), parotid (7), skin cancer (5), metastases without primary (6). Mean was 63 years (range 20-86), 76% men. RT given: 2 Gy daily fractions up to total tumor dose of 64 Gy. Mean CRE value 18.2. Median follow-up time 10 months (range 0.9-25). Radiation dose to the thyroid was based on the dose plan. Time to development of HT was calculated from start of RT. HT was defined as combination of increased S-TSH and decreased S-T4 levels. The probability for HT at 18 months posttreatment was 24% (Kaplan-Meier). This risk was 27% for patients receiving full dose to the thyroid gland and 16% for those with less than full dose. This difference was not statistically significant. No difference in the incidence of HT was seen when patients treated with RT only were compared to those treated by combined RT and surgery (mostly neck dissection/laryngectomy).

1274

RADIATION FIELD RECONSTRUCTION POSTFACTUM: VALUE OF THE WHOLE-BODY BONE MARROW SCINTIGRAPHY.

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1276

AN IRIIDIUM APPLICATOR FOR VAGINAL VAULT BRACHYTHERAPY

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A new disposable gynecologic applicator designed for postoperative vaginal vault brachytherapy is presented. The applicator is after-loadable manually by iridium 192 wire. Designed chiefly by Dr.G.T., this applicator has several advantages: (1) There is no need to install expensive and complicated equipment; (2) Sterile applicators come in ready-to-use packages; (3) Applicator is easily carried by patients; (4) There is no need for specific training in order to use this system; (5) There is no need for general anesthesia during the application; (6) Patient doesn't have to be immobilized during treatment; (7) There is no need for urinary catheterization; (8) Dose distribution at the target volume is homogeneous; (9) Radiation doses received by urinary bladder and rectum are well below the tolerance levels; (10) There is no need for expensive radioprotection measures for iridium applications.

1273

APPLICATION OF LQ MODEL ON OUR CRANIOPHARYNGIOMA PATIENTS  
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Twelve female, 11 male, a total of 23 patients with the diagnosis craniopharyngioma were treated by external radiotherapy between 1976 and 1988. Their age ranged between 4 - 57 (Median 14). The surgical intervention preceding radiotherapy was in the form of biopsy and cyst aspiration in 3, subtotal excision in 20 patients. All patients were treated by radiotherapy using a Cobalt-60 teletherapy unit. Total tumour doses of 40.60 - 60.00 Gy with a mean of 54.7 Gy were delivered in 25-40 fractions with 1.40-1.80 Gy/fraction over 42-86 days. Isoeffective dose calculations were made using L-Q formula. Biologic Equivalent Doses (BED) were calculated for TUMORS (Gy-10) and LATE RESPONDING TISSUES (Gy-2). BEDs for tumors ranged 28.32 Gy-10 to 60.01 Gy-10 (Median 49.15 Gy-10). Local recurrence developed in 6 patients (% 26) and three of them died and the TUMOR BED was below 50.00 Gy-10 in 5 of them. It is of interest that the overall treatment time in all patients with local relaps is more than 49 days. Total tumor doses of 50.00 Gy-10 seems to be adequate for local control and it is our conclusion that fraction size of less than 1.75 Gy and prolonged overall time have an adverse effect on prognosis.

1275

EFFECT OF HYPERTHERMIA COMBINED WITH RADIATION ON REFRACTORY TUMORS. PRELIMINARY DATA.

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25 patients (pts) with refractory or recurrent neoplasia received an hyperthermia-radiotherapy combined treatment from January 1991 to June 1992. 23/25 pts had lymph-nodal or soft-tissues localizations from different types of solid tumors. 1/25 pt had liver metastases from biliary-tract cancer and the last one brain metastases from lung cancer. All patients received hyperthermia twice a week 15 minutes after irradiation for a total of 10 courses. The temperature was measured via 4 optical fibers and considered therapeutic when 3/4 achieved the optimal thermal dose (42.5 °C). Local hyperthermia was performed by capacitive type apparatus using a radio-frequency wave of 13.56 Mhz under the maximum power of 500 W. There were no severe complications of heating: burn and fat induration have been noted in approximately 15 % of pts. 18/24 evaluable pts achieved a clinical objective response for an overall response rate of 75 %. In 3 pts (12.5%) a complete local regression of the tumor was observed. All of them had larger than 4 cm lesions. Interestingly all pts showing less than 1 cm lesions did not respond to treatment. It is likely that the good vascularization of the small tumor causes heat-loss and avoids to reach an optimal temperature in the tumor core.

1277

THE PLACE OF BRACHYTHERAPY IN LIP CANCER

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From 1988 through 1992, 22 lip cancer cases were treated with interstitial iridium 192 wires. 7 of these had postoperative interstitial applications either after failing (2 pts) or for tumor positive margins (4 pts) or for unknown resection margins (one pt). 15 were treated primarily by brachytherapy without surgery. Only 5 pts had a combination of external and interstitial irradiation, and 17 had interstitial therapy only. 55% had T1, 31% T2, 5% T3, and 9% had a recurrent tumor; 91% were N0 before commencement of radiotherapy. Total brachytherapy dose was 60-75 Gy if applied as the sole model of irradiation, or 25-30 Gy if applied after external radiotherapy. 16 pts were followed for at least one year; of these 2 had recurrence at the margin of the target radiotherapy volume. The cosmetic result was either excellent or good in cases treated by definitive brachytherapy. 67% had no complications or complaints due to brachytherapy. The results show that brachytherapy is an alternative treatment to surgery in lip cancer.