

1278

PROFILE OF AN EUROPEAN RADIOTHERAPY DEPARTMENT
 BASED ON A 10-YEAR AUDIT PROGRAM OF THE EORTC
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 Since 1982, the Radiotherapy Group of EORTC is carrying out a Quality Assurance Programme which included the evaluation of the structure and human resources of 50 centers actively participating to the Group Activities. Material and methods : This Quality Assurance audit was performed on the basis of 1) on site-visits by radiation physicists and physicians, and 2) a detailed questionnaire to collect "on-time" data on the status of each center, to clarify some obscurities encountered during on-site visits and to extend investigations to some issues that had not been addressed during local audits. Results : The analysis reports on dept structure, workload for staff and equipment, and quality control procedures carried out by single institutions. This comparative analysis is characterized by a large range of the size of participating centers and wide variations of workload per equipment unit and staff members. Comparisons between data collected, in the early '80, with a recent update, showed that there is no real progress in terms of workload per equipment unit. As regards the number of radiotherapists and radiation physics team, it seems that the load of cancer pats, pro capita and per yr. tends to slightly diminish, especially in centers with considerable staff shortages. An opposite trend is observed for the workload of radiographers. Discussion : A tentative profile of an European RT dept and some guidelines are derived from these data. These guidelines concern the use of internal quality control procedures, of tomodesitometric techniques in treatment planning, brachytherapy and recommendations on equipment and staff workload.

Urological Tumours

Bladder Cancer

1279

T-categorization and curative treatment of muscle-invasive bladder cancer
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 535 of about 1200 pts with T2-T4 bladder cancer from the Southern part of Norway received radiotherapy (\pm chemotherapy) at the NRH (pre-cystectomy: 227; definitive: 308; 1980-90). T-categorization was based on muscle-invasion and the bladder tumour's palpability. In pts to be cystectomized the local urologist performed the T-categorization. All other pts were re-examined at the NRH. The 5-year cancer-specific survival after cystectomy was 58% (T2:63%; T3a:50%; T3b:62%, T4a:57%) and 24% after definitive radiotherapy (T2/T3a: 38%; \geq T3b: 14%). The T-category was the only prognostic factor in cystectomized pts, whereas T-category, serum creatinine, age and radiotherapy schedule represented independent prognostic factors in definitely irradiated pts. Pre-cystectomy neo-adjuvant chemotherapy was associated with a significantly improved survival in pts with T3/T4a tumours, but not in those with T2 tumours. **Conclusions:** 1. In a multicenter setting prognostically relevant T-categorization (T2 vs \geq T3) of operable bladder cancer can be performed based on the palpability of the bladder tumour. Subgrouping of T3a and T3b tumours seems possible if done by urologists with broad experience in cancer urology and appears important among pts who are to be definitely irradiated. 2. Only 20-30% of all T2-T4 bladder cancer pts are eligible for total cystectomy (58% 5-year survival). 3. Definitive radiotherapy offers a 38% 5-year survival to pts with T2/T3a, whereas the 5-year survival rate for pts with more advanced tumours is \leq 20%.

1281

PRELIMINARY RESULTS OF A MULTICENTRIC, RANDOMIZED TRIAL COMPARING INTENSIVE TO CONVENTIONAL INTRAVESICAL CHEMOPROPHYLAXY WITH EPIRUBICIN IN T_a, T₁ SUPERFICIAL TRANSITIONAL CELL CARCINOMA OF THE BLADDER.
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 For the "Belgian Collaborative Urology Group".

Adjuvant intravesical chemoprophylaxis after TUR performed for T_a, T₁ transitional cell carcinoma of the bladder is well known to reduce natural recurrence rate and to increase delay to first recurrence of the disease. A standard treatment is scheduled with 4-weekly instillations followed by 5-monthly instillations of Epirubicin (E) at 50 mg in 50 ml of saline (arm B). We investigated if a more intensive treatment of 4-weekly instillations followed by 5 instillations of E at 50 mg in 50 ml of saline every 2 weeks (arm A) would improve the recurrence control, when compared to standard treatment (arm B).
 Central randomization enrolled 330 patients until 07/12/92. 281 patients' data are available at the data centre out of which 39 are too early. 239 patients are eligible and 214 fully evaluable (A:102, B:112). The median follow-up of the study is 1.8 years. Patient characteristics are as follows : mean age (A:67, B:69 yrs) ; sex ratio (A:16F/86M, B:23F/89M) ; mean weight (A:74 [48-109], B:70 [40-100]) ; primary/recurrent (A:59/42, B:69/43) ; single/multiple (A:39/63, B:37/74) ; T_a/T₁ (A:45/53, B:52/54) ; G1/G2/G3 (A:43/35/18, B:29/65/12) ; p<0.05).
 75% of the patients in both arms did not recur ; the recurrence rate/year was A:0.32, B:0.34 (NS). Time to first recurrence was significantly different for sex, primary/recurrent tumours and G category. Chemical cystitis was very mild and not different between A and B ; bacterial cystitis was present in 6 patients in A and 2 patients in B dropped out for severe cystitis. 4 patients in each arm reached the end point (A:2 T2, 1 T1s, 1 x 3rd recurrence, B:2 T2, 2 x 3rd recurrence).
 With regard to equivalent efficacy in the reduction of recurrence rate without increased incidence of chemical or bacterial cystitis, shorter treatment with the same dosage and number of instillations could be preferred in terms of treatment intensification and patient's better compliance.

1280

RADICAL RADIOTHERAPY FOR T1 BLADDER CANCER: THE EXPERIENCE OF THE ROYAL MARSDEN HOSPITAL
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Conventional treatment for T1 bladder cancer is transurethral resection with or without intravesical chemotherapy, however recurrence is common and some develop progression of stage. Therefore, to investigate the possible role of radiotherapy in this stage of disease we reviewed 1,783 cases of bladder cancer treated at the Royal Marsden Hospital between 1.7.72 and 31.9.90 and found 25 patients treated with radiotherapy for T1 tumours. Median patient age was 68; 20 patients were male and 5 female. 22 tumours were transitional cell carcinomas and there were 8 high grade, 7 intermediate and 9 low grade tumours. 17 patients had received surgical treatment prior to referral for radiotherapy. Megavoltage therapy was given to a median dose of 60.8Gy. Median survival probability was 34 months. 9 patients (53% of those evaluable) had complete resolution of disease, 6 had partial resolution, 2 progressed on treatment and 8 were not evaluable. No association between response and tumour characteristics was found. There were 9 local recurrences of which 3 were at the original site and 2 at a new site within the bladder and 4 unevaluable. 10 patients had at least RTOG grade 2 late toxicity to bladder or bowel; 1 required a cystectomy and 1 resection of necrotic bowel. It is concluded that whilst some patients may benefit from radiotherapy; the toxicity is significant, and randomized studies are required to evaluate its value in comparison to surgery alone or with intravesical chemotherapy.

1282.

INTRAVESICAL BACILLUS CALMETTE-GUERRIN THERAPY FOR PATIENTS WITH SUPERFICIAL BLADDER TUMORS WHO FAILED THIOTEPA THERAPY

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Fifty patients (pts) with superficial transitional cell carcinoma of the bladder in whom intravesical thiotepa therapy had failed were further treated with bacillus calmette guerlin (BCG). The mean duration of follow-up was 81 months (range, 26-28 months). Following failure of thiotepa therapy, 112mg of Pasteur strain BCG was instilled weekly for 6 weeks followed by a monthly dose of 75mg. Tumor recurrences numbered 122 in the 50 pts when on thiotepa therapy compared to 36 when the same pts were on BCG therapy. The cumulative follow-up period was 2268 months for thiotepa therapy and 1390 months for BCG. The recurrence rate per 100 pt-months during thiotepa therapy was 5.38 and during BCG therapy 2.58 (p<0.001). The estimated disease-free rates at 5 years were 10% and 59% respectively (p<0.0001). Our data suggest that intravesical BCG therapy is effective for pts with superficial bladder tumors, who failed thiotepa therapy.