

cognitive fatigue subscale revealed levels that were significantly increased above pretreatment values ($p = 0.003$). The HADS anxiety score decreased during CRT ($p < 0.001$) and it remained decreased one year after therapy ($p = 0.001$). HADS depression levels did not change significantly during CRT but were below baseline levels 8 weeks after treatment ($p = 0.006$). They then returned to pretreatment values 1 year after therapy. Hemoglobin levels did not change significantly during or after CRT. At 60 Gy the fatigue scores correlated closely with HADS anxiety (ρ in between 0.37 and 0.73, $p < 0.001$) and HADS depression (ρ in between 0.46 and 0.71, $p < 0.001$), with the highest correlation found for the FAQ and the lowest for the fatigue bother score. There was an inverse correlation between fatigue and global quality of life (ρ in between -0.48 and -0.71 , $p < 0.001$). Hemoglobin levels did not correlate with fatigue.

Conclusions: Radiation induced fatigue can be detected with various standardized instruments disclosing the same time course: after an increase during therapy fatigue subsides within weeks after treatment. We found no evidence that decreasing hemoglobin levels or rising anxiety and depression levels are responsible for fatigue during CRT. Since fatigue levels one year after therapy were not different from pretreatment values, chronic fatigue after definitive or adjuvant CRT for prostate cancer does not seem to be a long term side effect of radiation therapy. Consistent with the literature we observed a close correlation of fatigue with anxiety and depression. Since fatigue also correlated closely with global quality of life, it should be regarded as equally important as other treatment related symptoms.

2392 Prostate Cancer Patients and Their Perception of Cancer Control, Linked to Prostate-Specific Antigen Levels and Their Impact on Quality of Life

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Purpose/Objective: The aim of this study was to describe perception of health, quality of life (QoL), disease status, and specific symptoms in members of Swedish prostate cancer (PC) support organizations.

Materials/Methods: All 2,235 registered members of ten PC support organizations were asked to participate in the study. At enrollment, participants completed an informed consent form and a specially constructed questionnaire recording self-reported information on disease status at diagnosis, as well as their own perception of health. After completion of the questionnaire, a symptom-specific questionnaire, the Prostate Cancer Symptom Scale (PCSS), was sent to all participants together with a QoL formula (EORTC QLQ-C30). No record data was collected for the participants.

Results: The response rate was 58% ($n = 1,301$). Median age was 70.0 years and median time since diagnosis was 3.0 years. Actual prostate-specific antigen (PSA) levels (ng/ml) were $<10 = 84\%$, 11 to $20 = 8\%$, 21 to $50 = 4\%$, and $>50 = 5\%$. The most common treatment was radical prostatectomy ($n = 279$). Other treatment modalities included external beam radiotherapy (EBRT) ($n = 55$), brachytherapy ($n = 11$), hormones only ($n = 357$), and watchful waiting ($n = 98$). Almost 50% of the patients had received hormone treatment. Mean actual PSA was 5.9 ng/ml in those who had a perception of being "PC disease-free" in comparison with PSA = 10.7 ng/ml, PSA = 64.6 ng/ml, and PSA = 219.8 ng/ml in patients whose perception was "disease under control", "uncontrolled disease", and "metastatic disease", respectively. Patients with localized PC disease at diagnosis experienced "uncontrolled disease" at a lower PSA level during follow-up than patients with primary metastatic disease. Role functioning, fatigue, and pain were also influenced by the patients' perception of the disease and the PSA level.

Conclusions: At follow-up, patients with localized PC disease at diagnosis experienced their disease to be "uncontrolled" at a lower PSA level than patients with primary metastatic disease. Prostate-specific antigen levels at follow-up had an impact on the patients' perception of disease control and QoL.

2393 E-Communication for Patient Information and Support: Feasibility and Usefulness Study Among Irradiated Larynx Cancer Patients

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Purpose/Objective: The observance of time-dose prescription is an important parameter of irradiation effect. Adequate patient support about acute reactions improves compliance to treatment. E-communication could represent an effective tool in addition to already given verbal and written information. An Internet advising project was designed for larynx cancer patients on radiotherapy involving survivors as a support group and health professionals as a monitoring team. This pilot study aims to assess the feasibility and to define the methodology of the project.

Materials/Methods: All larynx cancer patients irradiated during the last two years were considered as a reliable image of the future target population, namely recently diagnosed cases entering their radiotherapy course. The 65 patients treated in 2002 and 2003 were included: 44 males and 21 females, aged 90 to 37 years (mean 65). Most of these cases were of poor socio-economic status.

The help group consists of 15 survivors selected on a voluntary basis. Owing to the same diagnosis as the target population they received the same treatment. By comparison they are better educated and have a higher income. They use to be on Internet and are well aware of e-mailing, instant messaging and chat rooms.

Hospital professionals constitute the electronic support team: head and neck radiation oncologist, nurses for health and psycho-social problems and an executive secretary in charge of e-communication aspects.

Feasibility study addressed patients capabilities to communicate electronically from technical points of view as well as their personal needs and motivations. A questionnaire was designed to evaluate 14 major items with a total of 76 response opportunities by interview method.

Results: Physical accessibility to the Web is present among 71% of patients likely to be concerned by the project. 10% have no phone connection and 19% use a mobile only. 56% of cases have not any personal computer at their disposal, 20% could be direct users and 24% would be indirect ones through family and friends. Some extent of voice impairment is found once over four times. There is no French language difficulties nor misunderstanding even in Italian and Spanish speaking persons. 27%

of patients need more cancer and treatment related information and 17% phoned to the caring team during irradiation period. The potential benefit is confirmed by 67% of the population and 64% would have been very interested in participating if the project had been operational at the time of their radiotherapy. Most of the patients (93%) give equal importance to communicate with health professionals as with the virtual community of survivors. 3% seek moral encouragement and exchange of personal experiences, 45% information only and 52% have both motivations. Among disinterested patients, number one reason (73%) is intimacy preservation while 20% of patients prefer face-to-face interactions and only 6% are unwilling to cope with technical aspects of computers because they do not feel comfortable. Interestingly, age does not seem to influence the decision to join the project.

Conclusions: A project of rendering patients who undergo radiotherapy able to communicate electronically with both a help group of survivors and a team of health professionals is favourably considered by a majority of the target population. Physical accessibility to the Web is however far from being generalized. Providing free microcomputers constitutes a prerequisite and Internet training lessons are mandatory. E-mailing, instant messaging and chat rooms are thought as valuable tools to improve an insufficient information about cancer and treatment. When existing, disinterest is not linked to age nor technicality but to a preference for face-to-face interactions. If the requirements pointed out by the pilot study are fulfilled, e-communication could correlate to patients better compliance and quality of life. Without excluding the use of conventional modalities, our research will try to maximize the benefits of this challenging new area.

2394 Assessment of Quality Life of Nasopharyngeal Carcinoma Patients with EORTC QLQ C30 and H&N 30: Turkish Oncology Group, Head and Neck Working Party Study

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Purpose/Objective: The current study reports on long-term Quality of life (QoL) status following conventional radiotherapy in 187 nasopharyngeal carcinoma patients from 14 centers in Turkey

Materials/Methods: Patients with the diagnosis of nasopharyngeal carcinoma treated in 14 centers in Turkey with minimum 6 months of follow-up in complete remission were asked to complete Turkish version of EORTC QLQ C30 and HN 35 questionnaires. Each center participated with the required information of clinical data including age at diagnosis, gender, symptoms on admission, follow-up period, treatment modalities, radiotherapy dose and AJCC 1997 tumor stage. Thirty-three QoL scores of each patient including function, global health status and symptoms were calculated as instructed in EORTC C30 QLQ scoring manual. All of the scales and single-item measures range in score from 0 to 100. A high scale score represents a higher response level. Thus a high score for a functional scale represents a high / healthy level of functioning, a high score for the global health status / QoL represents a high QoL, but a high score for a symptom scale / item represents a high level of symptomatology/problems.

Kruskal-Wallis and Mann-Whitney U non-parametric tests were used for comparisons.

Results: One hundred eighty-seven patients with median age of 46 years (range; 16–79 years) participated to complete the questionnaires. Median follow-up time was 3.4 years (range 6 months-24 years). All patients have received external beam radiotherapy. Beside external radiotherapy, 59 patients underwent brachytherapy boost, 70 patients received concomitant and 85 patients received adjuvant/neoadjuvant chemotherapy. Most of the patients in the analysis (75%) were in advanced stage [(Stage III, n = 85 (45.4%); stage IV, n = 55(29%)]. Median global health status was calculated as 66. Parameters that increase global health status were male gender, early stage disease and patients with less than 4 year follow up (p < 0.05). Functional parameters were better in male and early stage disease. Factors yielding better symptom scores were short interval after treatment (10 scores), male gender (7 scores) and lower radiation dose (6 scores). Neoadjuvant or adjuvant chemotherapy did not have any effect on quality of life whereas concomitant chemotherapy adversely affected 4 symptom scores.

Conclusions: It is remarkable that quality of life is adversely affected in our nasopharyngeal carcinoma patients treated with combined treatments. The factors that adversely affect quality of life are advanced tumor stage, female gender and long term follow up. Further controlled studies evaluating both pre and post-radiotherapy status are necessary to clarify the contribution of each treatment modality in quality of life.

2395 Acute Gastrointestinal, Genitourinary, and Dermatologic Toxicity During Dose Escalated 3DCRT Using an Intra-Rectal Balloon for Prostate Gland Localization and Immobilization

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Purpose/Objective: We determined the acute gastrointestinal (GI), genitourinary (GU) and dermatologic (D) toxicity during dose escalated 3-dimensional conformal radiation therapy (3DCRT). An intra-rectal balloon adapted from the device (Medrad, Indianola, Pennsylvania) used for endorectal coil magnetic resonance imaging was utilized for prostate gland localization and immobilization.

Materials/Methods: From September 2001 to September 2003, 46 men with clinical tumor category T1c to T3a, and at least one high-risk feature (PSA >10, Gleason score 7 or higher, or MRI evidence of either extra capsular extension (ECE) or