4032 POSTER

Validation of the Barber Test as a Screening Questionnaire for Frailty in Elderly Patients

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Background: The term "frailty" is spreading in the field of Oncogeriatry; however, there is no unanimity on the most effective methods for detecting the condition. The Barber test (BT) has traditionally been used to assess the ambulatory elderly population, but its use is not widespread in the elderly cancer patient population. The aim of this study was to validate the BT as a frailty screening questionnaire in elderly cancer patients.
Material and Methods: The BT was applied prospectively to all patients in the General Hospital de Cuenca who were older than 70 years of age and who were diagnosed with cancer between June and December 2010. Descriptive data related to the patients and their cancer histories were also collected. Using SPSS 15.0, we confirmed the reliability of this questionnaire by calculating its internal consistency (Cronbach's index, CR) and temporal stability (intraclass correlation coefficient, ICC). All patients gave their consent to participate in this study.
Results: Data were collected for a total of 86 patients. The mean age was 78.66 years (range: 70.23–91.8). Of the patients sampled, 62.4% were men (n = 53). In addition, 43.5% of the patients had an Eastern Cooperative Oncology Group (ECOG) score of 1 (n = 37), and 34.1% had an ECOG score of 0 (n = 29). With respect to tumour status, 44.7% (n = 38) had been diagnosed with gastrointestinal tumours, 23.5% (n = 20) with breast and gynecological tumours and 10.6% (n = 9) with a urological or prostate tumour. The average BT score was 1.31 (range: 0−5). There were 61 patients (72.6%) at risk of frailty according to the BT (score $\geqslant$1). The CR and the index of absolute agreement were 0.782. The ICC was 0.275.
Conclusions: Because the Barber test contains questions that are heterogeneously variable, its use can lead to incorrect conclusions (CR 0.782). In addition, this questionnaire lacks temporal stability (ICC 0.275). Use of the BT as a screening tool for frailty is problematic owing to its lack of reliability in the field of Oncogeriatry. Although the BT may be useful in other patients, alternative frailty screening tools should be used for this population.

4033 POSTER

Feasibility of Using Groningen Frailty Index as an Assessment Tool for Cancer Treatment Decision in Elderly Patients in Sarawak, Malaysia: Preliminary Report

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Introduction: Performance status (PS) attempts to quantify patient's general well-being and helps to determine whether patient will benefit from treatment or be made worse. Most commonly used are the Karnofsky and the ECOG score, the latter quoted in WHO publications. ECOG is easy and assists making discriminations that are clinically useful. According to the criteria, patients who are fully active or have mild symptoms respond more frequently to treatment and survive longer than patients who are less active or have severe symptoms. In the Department of Radiotherapy, Oncology & Palliative care (DRO) 300 new cases in the age group (>65years) are seen annually. In our practice, ECOG is used as a pre-treatment assessment tool. As patients >65 years tend to have other co-morbidities, that are not assessed in ECOG PS scale, we decided to test the practical feasibility of using GFI (Groningen Frailty Index) and to assess GFI quality to aid in treatment decision and to compare it to ECOG in an oncology clinic.
Method: A consecutive series of 286 patients who were $\geqslant$65 years and had no prior oncology treatment were included in this pilot study (June 2009-August 2010). For the purpose of comparing GFI and ECOG, we grouped the GFI scores 0−4 as good comparable with 0−2 for ECOG where the intent to treat is radical. For GFI scores of 5−9 (moderate) the intent to treat was palliative. While GFI scores of >10 and ECOG >3 only had best supportive care. Those who refused, did not receive adjuvant/ hormonal treatment, with ECOG score of 4 and GFI score of >10 were excluded.
Results: The most common cancers were: lung, colon, stomach, rectum, breast and nasopharynx. 78% (220 patients) were in advanced stage (3&4). 81% (232/286) were ECOG 0−2 and 50% (143/286) were GFI 0−4. 53%t (137/266) of the patients with GFI 0−9 (eligible for radical to less radical treatment) completed treatment. While with ECOG score of 0−2, only 40% (93/232) completed treatment. 64% (34/53) with ECOG >3 who would have only received best supportive care were treated with less radical intent based on GFI scores 5−9 and 41% (14/34) completed treatment.
Conclusion: Of the two questionnaires, GFI provided more information in assisting in treatment decision making, was more practical, took about 10 minutes and hence it is feasible to use in a busy clinic. More importantly, there was an advantage of GFI scoring over ECOG scoring for selecting those elderly patients who otherwise would be under treated.

4034 POSTER

Anti-androgen Therapy Suspension Following Prolonged Clinical and Biochemical Response:outcomes in a Series of Elderly Patients With Advanced Prostate Cancer

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Background: To describe the outcomes following the suspension of androgen- suppression therapy in a series of elderly patients in an advanced stage of prostate cancer and in prolonged clinical and biochemical response.
Materials and Methods: Of 371 consecutive patients with advanced prostate cancer and treated with androgen-suppression therapy, 44 older patients were defined as in stable response on the basis of the absence of noteworthy dysuria, normal prostate findings on digital rectal examination, and prostate-specific antigen values lower than 0.50 ng/ml. After suspending treatment, it was to be re-scheduled in case of onset of dysuria, evidence of a palpable lesion on digital rectal examination, or a rise in prostate specific antigen above 10 ng/ml. Progression of disease was defined as a prostate-specific antigen level increase at two subsequent measurements, and/or the appearance of new lesions, and/or evidence of progression of disease on digital rectal examination.
Results: Median age of patients was 78.5 years at the moment of therapy suspension. After a median follow-up of 93.9 months, fourteen patients (31.8%) showed progression of disease, but only 7 (15.9%) of these died. In 7 (15.9%) patients, serum testosterone levels did not exceed 0.5 ng/ml, indicating an absence of gonadal activity. The median time to progression was 138.2 months, and the median cumulative survival from the start and from the suspension of androgen-suppression therapy was 105.5 months and 64.1 months, respectively. The savings in drug costs amounted to 772,267 Euro.
Conclusions: Taking into consideration these outcomes of survival and of savings in drug costs, we can conclude that in these selected elderly patients, this treatment option could be of interest.

Oral Presentations (Sun, 25 Sep, 09:00−10:50)

Paediatric Oncology

4100 ORAL

Radiation Therapy in Childhood Low Grade Glioma (LGG) − a Subgroup Analysis Within the Scope of the German Multicenter Treatment Study HIT-LGG 1996

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Background: The HIT-LGG 1996 trial offered the first uniform treatment strategy for childhood low grade glioma (LGG) in Germany. Radiation therapy (RT) formed an integral part in the management of progressive or inoperable disease. We analysed the treatment, prognostic factors and outcome of the irradiated patients.
Material and Methods: We assessed 192 patients who underwent treatment between January 1997 and October 2006. The age at the beginning of irradiation varied from 0.7 to 18.8 years. External fractionated radiation therapy (EFRT) was administered either as a first line treatment or after the failure of primary chemotherapy. Children younger than five years

received chemotherapy as primary treatment to postpone irradiation and to minimize its suspected deleterious effects on the growing CNS. Children 5 years and older received EFRT. Upon progression the corresponding treatment modality was applied in a crossover design. Brachytherapy (BT) was used in selected cases regardless of age. The Kaplan–Meier method was used to estimate overall survival (OS) and progression-free survival (PFS). PFS estimates were compared by means of the log-rank test.
Results: During a median follow-up period of 4.3 years (range 0−9.7 years), 59 patients (31%) experienced progression or relapse and 12 patients (6%) died. The 5-years PFS/OS was 60%/92% after EFRT and 69%/94% after BT.
Children with pilocytic astrocytoma achieved a PFS of 69% at 5 years. In contrast, the PFS rate of children with non-pilocytic histology was only 43% ($P < 0.05$).
Neither of the potential risk factors, such as tumour location, prior chemotherapy and age, nor the administered irradiation technique (BT versus EFRT) had a significant impact on PFS.
Escalation of the total dose of EFRT above 45 or 50.4 Gy did not result in an improved PFS.
Conclusions: EFRT plays an important role in the treatment of childhood LGG. In selected cases BT is comparably effective.
Currently the recommended dose prescriptions for EFRT range between 45 and 54 Gy. According to our data a reduction of the total dose below 50.4 or even 45 Gy seems to be feasible without compromising progression-free survival. However the optimal total dose of EFRT still needs to be defined in a prospective trial.
Non-pilocytic histology seems to worsen prognosis.

4101 ORAL

Multicentre Prospective Classification of Childhood Brain Tumours Using Magnetic Resonance Spectroscopy

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Introduction: Magnetic Resonance Spectroscopy (MRS) provides non-invasive metabolite profiles which can be used to aid diagnosis and provide prognostic markers. Previous studies of MRS for classifying childhood brain tumours have been limited by small numbers of cases and retrospective, single-centre design. The aim of this study was perform a large prospective multicentre evaluation of MRS as a tool for grading childhood brain tumours.
Method: A tool for classifying tumours into low grade vs high grade was built using single-voxel MRS (PRESS, TE/TR 30/1500 ms) acquired using two1.5 T scanners in a single centre (Centre 1) over a 5 year period up to May 2008. A total of 123 cases were accrued with grading confirmed by histopathology (N = 97) or by radiological review with no biopsy (N = 26). Of these, 81 were diagnosed as low grade (LG; WHO grade I or II) and 42 as high grade (HG; WHO grade III or IV). The MRS grading tool was constructed by processing MRS data using TARQUIN to determine metabolite concentrations, this method can account for differences in MRS data acquisition protocols that are difficult to avoid in multicentre studies; then classifier training was performed using principal components analysis followed by linear discriminant analysis. The MRS grading tool was then tested in a prospective manner on data acquired on 6 different scanners in 4 centres. The test dataset consisted of 55 cases from Centre 1 acquired between June 2008 and September 2010, and 55 cases from Centres 2−4, of which 10 were acquired on a 3 T scanner.
Results: The prospective testing gave an overall accuracy of 86%. The classification accuracy of cases from centres 2−4 was lower (80%) than that of cases from centre 1 (92%). Some cases which had an MRS classification of high grade which were low grade on histopathology behaved in an aggressive manner and responded poorly to treatment.
Conclusions: High classification accuracy for tumour grade has been shown in a prospective multi-centre evaluation of a childhood brain tumour classifier based on multivariate analysis of metabolite profiles derived from MRS. Where there is a disagreement between grade given by MRS and histopathology, MRS may aid tumour classification.

4102 ORAL

A Chemical Genetics Screen Identifies a Novel Drug That Targets Steroid Biogenesis and Receptor Signaling Leading to Growth Inhibition of Pediatric Malignant Astrocytoma Cell Lines

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Background: Brain tumours are among the leading cause of cancer-related deaths in children, with least 60% manifested as astrocytomas. Malignant astrocytomas represent 8−12% of all pediatric supratentorial brain tumours, with an overall median survival of 11−14 months. While those that arise in the brainstem represent an additional 10−20%, with a 10-year overall median survival of <10%. Despite current therapies, challenges still exist in the treatment of pediatric malignant astrocytomas, leading to the need to explore new therapies. Since a wide range of genes involved in steroid biogenesis and signaling are expressed in pediatric malignant astrocytomas, our objective was to investigate whether novel classes of drugs that target these gene products can be effective in inhibiting growth.
Methods and Results: We screened using a candidate chemical structure approach, a library of 400 drugs which can potentially inhibit steroid biogenesis and cell signaling. By using a panel of human pediatric malignant glioma cell lines established from surgical specimens, we discovered a potent drug that inhibits androsterone (male sex pheromone) biogenesis and with the ability to significantly reduce the viability of pediatric malignant astrocytomas in a dose dependent manner. Cells treated with this drug responded by undergoing apoptosis, cell cycle regulatory, and invasive changes. Furthermore, significant inhibition of transformation was noted. Cells also become increasingly radiosensitive upon drug treatment. Most remarkable, the toxicity on human astrocytes (control) was minimal.
Conclusion: We have discovered a novel drug from a chemical genetic screen which can significantly inhibit the growth of pediatric malignant astrocytomas, with minimal toxicity on non-transformed human astrocytes.

4103 ORAL

Doxorubicin Can Be Safely Omitted From the Treatment of Stage II/III, Intermediate Risk Histology Wilms Tumour − Results of the SIOP WT 2001 Randomised Trial, on Behalf of the SIOP Renal Tumours Study Group

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Aims: The SIOP WT 2001 trial aimed to test whether doxorubicin (D) can be safely omitted from chemotherapy for stage II/III, intermediate risk histology Wilms tumour (WT), in the setting of exclusion of a newly defined high risk subgroup (blastemal-type) from the randomisation.
Methods: International multicentre trial (28 countries, 261 centres) registering all children diagnosed with a primary renal tumour. Those aged 6m-18 yrs with localized tumours were treated with 4 weeks pre-operative chemotherapy with vincristine (V) and actinomycin D (A). Tumour stage and histological risk group were assigned after delayed nephrectomy. StageII/III intermediate risk WTs were randomized between 26 weeks AV or AVD (total Doxorubicin 250 mg/m^2). Stage III tumours received 14.4 Gy flank irradiation.
Statistics: A non-inferiority limit of up to 10% decrease in 2 yr EFS was considered acceptable. Probability of wrongly accepting non-equivalence was set at alpha 0.025, power 0.90 with recruitment target 550 randomised patients. Randomisation was stratified by participating group and tumour stage.
Results: 583 patients were randomized between 11/2001−12/2009, with 341 stage II and 242 stage III. Median follow up was 39 months. 94% (512/543) were confirmed as eligible by central pathology review. In intention to treat analysis, there were 22 events (20 relapses)/9 deaths among 291 randomised to AVD and 34 events (27 relapses)/7 deaths