were 626.33±113.98, 550.28±122.56 and 254.06±18.56 respectively. The treatment time for IMRT, RA and 3D-CRT were 540±45s, 130±10s, 135±10s respectively.

Conclusions: RA assisted by ABC for HCC radiotherapy was feasible, with better dose distribution, fewer monitor unit, less treatment time and sparing more OARs.

2070   POSTER

The "BUONGIORNO" Project − an Italian Survey on the Incidence of Burnout Among Young Italian Radiation Oncologists

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Background: Burnout syndrome is a psychological syndrome due to prolonged exposure to chronic work stress with insufficient recovery and it is characterized by emotional exhaustion (EE), depersonalization (DP) and low personal accomplishment. Even if it is frequent in a wide variety of health care providers, limited data exist about his prevalence among Italian radiation oncologists. We performed a national survey to assess the prevalence of the burnout syndrome among young Italian radiation oncologists.

Methods and Materials: The Maslach Burnout Inventory (MBI) was send to young members (⩽40 years) of the Italian Association of Radiation Oncology (AIRO). They filled it anonymously. The MBI evaluated burnout level and the relationship with demographic variables, practice characteristics, career satisfaction, sources of stress.

Results: From 06/2010 to 11/2010, a total of 112 young radiation oncologists (M/F ratio 39:73) participated to this study; Mean age was 32 years (range: 23−39 years). Specialists and residents were the 60% and 40% of respondents, respectively. Burnout prevalence, defined as a severely abnormal level of either EE or DP, was 35%. Looking at EE, 38% and 9% of the interviewed show a middle or an high level of EE, respectively. The prevalence of middle or high levels of DP was 41% and 26%, respectively. Following items were statistically related (p < 0.005) to the risk to suffer of a burnout syndrome: working position (specialist vs resident), number of years of practice, working hours per week, lack of cooperation and/or conflicts with colleagues and chiefs, lack of opportunities for professional development and uncertainties on the working perspectives. High workload and responsibilities, job-related anxiety and lack in the autonomy decision-making in treating patients were reported by 91.1%, 87.6% and 86.7% of participants, respectively. Higher burnout scores have a statistical impact in the private life of the (p < 0.005), and 89.6% of respondents feel not to have enough time for personal/family life because of workload. Global health status was good or very good for 85% of interviewed, with only 5% and 2% assuming hypnotic/anxiolytic or anti-depressant medications, respectively. Five respondents (4%) declared a frequent consumption of alcohol (four or more times per week). Finally, 10−12% of the respondents wanted to leave their jobs.

Conclusions: Burnout is common among young Italian radiation oncologists. The statistical relation with some working/organizational and personal factors shows the need for educational tools in order to improve the management of workload and stress.

Poster Presentations (Sat, 24 Sep, 14:00−16:30)
Imaging

2100   POSTER

Fully Automatic Segmentation of Brain Tumour in CT Images

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Purpose: A new approach is presented to automatically extract brain tumour in CT images.

Methods: The method uses a sequence of brain CT images. Firstly, use morphology operations and wavelets based filter for denoising. Secondly, find out whether CT images contain brain tumour according to the symmetry of the brain CT images, extract the unsymmetric part and its neighbor as the region of interest (ROI). Then, extract the feature (e.g. texture, contrast, homogeneity, etc.) of the ROI. Finally, use k-means

clustering and support vector machines (SVM) for classification with the extracted feature of the ROI and get the contour of the brain tumour.

Results: Compared with manually contoured by the physicians, this method enables accurate and automatic extraction of brain tumour in CT images.

Conclusions: The method is shown with better performance than current methods. And it's a fully automatic, fast and accurate method in precise diagnosis and treatment of brain tumour patients.

2101   POSTER

Evaluation and Prediction of the Efficacy of Pleurodesis in Malignant Pleural Effusion by Clinical and Radiological Features

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Background: The standard treatment of recurrent malignant pleural effusion is intrapleural instillation of chemical agent, usually talc, in an attempt to produce pleurodesis. Our study purpose is to elucidate useful clinical and radiological parameters for evaluation and prediction of the efficacy of pleurodesis.

Material and Methods: A retrospective review of 83 consecutive patients treated with pleurodesis from 2002 to 2010. Clinical data were obtained from the hospital charts. All the radiological imaging, before and after the procedure, was reviewed. The patients were divided into two groups: group 1 − those with initial small to medium volume (n = 34, 41%) and group 2 − those with larger volume (fluid level above the hilus on chest x-ray) (n = 49, 59%).

Results: Clinical improvement was better and more rapid in group 1 (97% Vs 90%, and time to response 1.7 days Vs 2.6 days). Complete lung expansion was more frequent in group 1 compared to group 2 (30% vs. 12%, p < 0.001). Additional radiological abnormalities (atelectasis, nodules, mediastinal adenopathy, etc) revealed on CT scan were more frequent in group 2 compared to group 1 (84% vs. 58%). The above pathological changes significantly reduced expansibility rate of the lung [57% (19/33)] in group 2, but not in group 1 [80% (12/15)]. Only two patients required an additional pleurodesis within the first 3 months. CT scan done after the pleurodesis showed pleural thickening and calcfications, a desirable consequence, more common in group 1 than group 2 (58% Vs 25%, p < 0.04). However, there was no correlation between all the malignant thoracic findings, pleurodesis efficacy and survival. Survival was mainly dependent on the primary malignancy.

Conclusions: Treatment of pleural effusion by talc pleurodesis is highly effective, especially, if it is performed early, while there is small to medium volume of effusion, and minimal additional malignant findings in the thorax. Imaging by CT scan before pleurodesis is recommended in order to predict the outcome of the procedure and to suggest alternative treatments.

2102   POSTER

Bilateral Analysis of the Vascular Surface of the Internal Mammary Arteries and Veins in Patients With Breast Cancer on Magnetic Resonance Mammography (MRM)

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Background: Within the staging of breast cancer MR mammography (MRM) plays an important role. The aim of this study is to analyze the bilateral differences in the vascular surface of the internal mammary artery (IMA) and vein (IMV) in patients with established breast cancer versus healthy control patients.

Material and Methods: MRM of 135 patients was analyzed. Patients with postoperative changes of the breast, bilateral malignancy or patients treated with neo-adjuvant therapy were excluded. Measurements were made on a transverse T2w sequence (scanning parameters: slice thickness 1 mm, field-of-view 280×338×190 mm, matrix 352). Surface of both the AMI and VMI has been determined on both sides particularly on the second and third intercostal space by two independent readers. Differences in vessel surface between patients with and without breast cancer were analyzed using a linear mixed model.

Results: The vascular surface of the AMI was significantly higher on the side with breast cancer in comparison to the contra lateral side (mean difference in size 0.86 mm2, p = 0.001). Similar differences were observed for the VMI (mean difference in size 0.83 mm2, p = 0.005). There has been no significant difference in vascular area of the AMI and VMI in the group of patients without breast cancer.