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A X-ray therapy of skin cancer and benign skin lesions

Hans Christian Wulf
Bispebjerg Hospital, Denmark

X-ray therapy of skin lesions has until recently been used for treatment of basal cell carcinoma and squamous cell carcinoma as an alternative to surgery. For 100 years, X-rays have also been used to treat a great variety of chronic, benign skin diseases. A revival of this therapy method is now seen alongside new equipment suitable for low penetration x-ray treatment. Traditionally, tumors are treated with a total dose of 40-50 Gy, administered in approximately 10 fractions. The penetration of the X-rays is normally chosen so that 50% of the surface dose is present in the bottom of the tumor, and 50% will penetrate into the underlying, healthy skin, so an estimate of tumor thickness must be made. The half-value-layer (HVL) depends on the equipment; examples are given in the Figure 1. Other skin tumors, such as Kaposi's sarcomas, are very sensitive to x-ray therapy and may be treated with 8-12 Gy in 2-3 fractions.Success rate is about 93% for primary tumors. Chronic skin diseases which cannot be controlled sufficiently by other treatments may also be treated with x-ray therapy, such as eczema, psoriasis, Darier's disease, Hailey-Hailey disease, actinic keratoses. When treating inflammatory chronic diseases it is important not to administer very high cumulative doses over several years as it has been done in the past. Malign tumors such as mycosis fungoides, Bowen's disease and Paget's disease are also treatable by x-ray. Clinical examples will be presented.

h.wulf@regionh.dk

Role of PET/CT in initial staging and follow-up of soft tissue and osseous sarcomas

Heba Kamal Ali, Manar Hussein Abdel Sattar and **Nehal Ali Abdel Mohsen**
Cairo University, Egypt

Objective: This study was done to review the clinical role of FDG-PET/CT in the initial staging, regional recurrence, distant metastasis and prognostication of bone and soft tissue sarcomas. Also to review the recent advances in the follow up, evaluation of the treatment response after systemic chemotherapy and/or radiotherapy, differentiation of recurrence versus fibrosis and post-treatment surveillance for recurrence in bone and soft tissue sarcomas by the use of FDG-PET/CT.

Subjects & Methods: This study included 20 patients with sarcomas, 7 patients with biopsy proven osseous sarcoma and 13 patients with biopsy proven soft tissue sarcoma. Combined PET/CT scan was performed in one session. A whole body examination was performed starting from skull base to mid thighs; a whole body PET study was followed by diagnostic enhanced whole body CT scan. The whole study took approximately 20-30 minutes. Analysis of PET images was done via visual and semi quantitative assessment (SUV max measurement). On interpreting fused PET/CT images, lesions were considered positive when areas of increased FDG uptake are localized to the lesion. Lesions were considered negative at areas lacking high FDG uptake.

Results: There was no significant agreement in the detection of locoregional recurrence by PET/CT & CECT (P value=0.341), as they revealed similar results in 10 patients; 6 patients were positive and 4 patients were negative, while disagreed in 6 patients. Also, there was no significant agreement in the detection of distant metastasis by PET/CT & CECT (P value=0.394), as they yielded similar results in 10 patients while disagreed in 10. PET/CT was the best modality for detection of disease response, following treatment in follow up of patients with sarcomas as compared to CECT scan alone.

Conclusion: PET/CT is a useful diagnostic tool for imaging and detection of soft tissue or osseous sarcomas. PET/CT seems to be superior compared with conventional imaging in determining the M stage of STS and BS. Both PET/CT and CECT are equal in determining the T stage. 18F-FDG PET/CT had greater diagnostic accuracy in the detection of recurrent bone or soft tissue sarcoma compared with CECT alone.

hebakamala@yahoo.com