present in maximum number of patient with multiple metastases. Salvage chemotherapy given in 51 cases, palliative radiotherapy (30 Gy or 20 Gy) in 37 cases whereas in 5% of cases single session with 8 Gy was given.

Conclusion: A regular and long term follow up of patients with carcinoma of cervix is necessary to detect distant metastases. With early and proper diagnosis and treatment a better outcome could be achieved.

Cervix: Poster Abstract

Low dose radiation and chemotherapy significantly reduces hypoxic cell population in locally advanced cervix cancer- results of a phase II study

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Introduction: Tumor hypoxia is one of the major causes of high incidence of treatment failures to chemoradiation which is the standard of care in locally advanced cervical cancer. The necessity of newer treatment options that can circumvent hypoxia is highly relevant in this group. Use of low dose radiation to enhance the efficacy of cell cycle specific chemotherapy by mechanism of chemopotentiation is one of the elegant approaches reported in the literature. We have already published the feasibility, efficacy and tolerance of low dose radiation and chemotherapy in neoadjuvant setting in cervical cancer. In this report we evaluated the role of this novel treatment regimen in reducing the hypoxic tumor cell population in cervical cancer.

Methods: Total 24 patients with stage IIB-IIIB squamous cell carcinoma cervix were treated with initial 2 cycles of paclitaxel and carboplatin and concurrent low dose radiotherapy prior to standard chemoradiation. Response was assessed clinically, radiologically (by MRI) and pathologically (four quadrant representative punch biopsy from the cervix) after 3 weeks of neoadjuvant treatment prior to chemoradiation. Immunohistochemistry of HIF-1a was done in the biopsy samples to determine the proportion, intensity and scoring of hypoxic cells.

Results: The proportion of positivity of base line HIF-1α was 42% (10 out of 24 patients). Low, moderate and high expressions were seen in 8%, 17% and 17% respectively. We observed nuclear positivity in 20%, and fine granular perinuclear cytoplasmic positivity in 80% cases. We failed to observe any association between expressions of HIF 1α in relation to the distance from blood vessels in tumor cord. The average age of patients in hypoxia positive and negative groups were 51.7 vs 48.36 yrs (p > 0.05). There was no difference of mean hemoglobin level (11.3 to 11.1, p > 0.05.) or MRI based tumor volume at baseline (57.1 vs. 52.4, p > 0.05) in HIF 1α positive and negative groups respectively. Low dose radiation and chemotherapy significantly reduced the tumor volume in bulky hypoxic tumors. The tumor volume reduction rate (TVRR) was significantly higher in hypoxic group (TVRR $_{HIF\_neg}$ vs. TVRR $_{HIF\_pos}$ 68.9 vs. 86.3, p = 0.02, t-test). There was significant improvement of diffusion MRI derived apparent diffusion coefficient (ADC) in hypoxic tumors with low dose radiation and chemotherapy (0.75 vs. 1.27, p = 0.12, Wilcoxon signed-rank test). Median score of percentage of hypoxic cells after neoadjuvant treatment were significantly higher in patients who developed subsequent local recurrence than the rest of the group (77% vs. 5% p = 0.009, Mann Whitney U test).

Conclusion: Overall all HIF 1 positivity was 42% in the present study. A predominantly perinuclear pattern of HIF 1 staining was found in cervix cancer. Low dose radiation and chemotherapy significantly reduced the hypoxic tumor bulk in cervical cancer.

Cervix: Poster Abstract

Incremental Role of ^{18}F-FDG PET with contrast enhanced CT (PET-CECT) in detection of recurrence of carcinoma cervix

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Purpose: To evaluate the role of ^{18}F-FDG PET with contrast enhanced CT (PET-CECT) in early detection of recurrence in follow up patients of carcinoma cervix.

Methods: Patients with histopathologically proven carcinoma cervix who underwent chemotherapy, radiotherapy and/or surgery and on follow up

were recruited in the study. Fifty-two patients underwent ^{18}F-FDG PET-CECT for detection of recurrence. The median age was 51.5 (average = 53.4) years. PET-CECT studies were evaluated and analyzed separately by an experienced nuclear medicine physician and a radiologist independently. The physicians were blinded for the patient history. PET-CECT results were validated with histopathological correlation, conventional radiologic imaging/follow up PET-CECT study and clinical follow up.

Results: Out of 52 patients, 34 patients were reported as positive for recurrence, 17 of these were having active local recurrence and 31 patients had regional lymph nodal metastases, 14 patients had distant metastases (out of them 6 patients had distant lymph node metastases, 6 had pulmonary metastases, 4 had skeletal metastases and two had liver metastases). Remaining 18 patients were reported as negative for recurrence. The lung was the most common site for distant metastasis. Patient were then further evaluated based on histopathological correlation, conventional radiologic imaging and follow up PET-CECT scan and five were found to be false positive and one patient was identified as false negative. The sensitivity, specificity, positive and negative predictive value were derived to be 96.7%, 77.3%, 85.3% and 94.4%, respectively. Accuracy was calculated to be 88.5%.

Conclusions: ^{18}F-FDG PET-CECT is a very useful non-invasive modality for the early detection of recurrence and metastatic workup in patients with carcinoma cervix with a very high sensitivity and negative predictive value. It is also useful in targeting biopsy sites in suspected cases of recurrence.

Cervix: Oral Abstract

Evaluation of adequacy of conventional radiotherapy fields based on bony landmarks in cervical cancer patients using contrast enhanced CT

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Introduction: Cervical cancer is the second leading cause of cancer death in Indian women. Although, it is known that in Western women the conventional pelvic fields based on bony landmarks provided inadequate coverage for pelvic lymph nodes in cervical cancer; it remains unclear in Indian patients because of the pelvic anatomic discrepancies. In the present study, we have tried to evaluate the adequacy of conventional pelvic fields based on bony landmarks by using CECT using pelvic vessels as surrogate of lymph nodes.

Aims and Objectives: To evaluate the lymph node location in CECT pelvis using vessels as surrogate markers.

(a) To compare the data, so obtained, with the usual radiotherapy field; where bony landmarks are used to define the field.

(b) To evaluate the adequacy of radiation portal defined on bony landm-arks in covering pelvic lymph nodes.

Materials and Methods: This study was conducted in the Department of Radiotherapy and Oncology, Regional Cancer Centre, IGMC, Shimla in patients suffering from carcinoma of cervix. Two dimensional radiation portals were designed on conventional simulator "Acuity." CECT pelvis was done in the same position along with same immobilization accessories used during conventional simulation. 2 mm thick slices were taken from L1 to mid femur. Using vessels as surrogates for lymph nodes and applying Taylors guidelines, adequacy of conventional GOG field was judged.

Results: Most of the parameters failed in this study, signifying inadequacy of GOG defined field in Indian population, detailed results will be discussed at the time of presentation.

Cervix: Oral Abstract

Audit on *early stage carcinoma cervix primarily treated with radical surgery*: A *tertiary cancer care centre experience*

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Introduction: Clinical staging is universally accepted for ca cervix. In early