Material and Methods: Retrospective review of all patients with T4 HNSCC treated with IMRT at our centre, between December 2010 and February 2013. Overall, relapse free and local relapse-free survival were calculated from date of biopsy to date of death, relapse or last follow up.

Results: Of the 69 patients with T4 tumours, 73.9% were male and median age was 69 (41-84). 50.7% were oropharyngeal tumours and 73.9% were node positive. Primary resection was performed in 18 patients. Eighteen patients underwent radiotherapy alone and 51 received concurrent chemotherapy (45 cisplatin, 6 cetuximab). Median follow up was 3.0 years (range = 3 months to 3.9 years). 28 patients died; 22 related to HNSCC, 6 from other causes. Overall survival at 3 years was 58.0% (95% CI: 44.6 to 69.1). 28 patients (40.6%), relapsed with median time to relapse of 8 months. 20 patients (29.0%) relapsed locoregionally and 11 patients (15.9%) developed distant metastatic disease. For 8 patients, distant metastases were the only site of relapse. Surgical salvage was performed in 6 patients with locoregional relapse only, 2 of whom have since died from causes related to HNSCC. Relapse free survival at 3 years was 54.0% (95% CI: 40.5 to 65.8) and loco-regional relapse free survival at 3 years was 65.5% (95% CI: 51.2 to 76.5). Nineteen patients (27.5%) had residual disease on PET scan 12 weeks post treatment. These patients were at greater risk of relapse and death with 3 year overall survival of 37.0% (95% CI 15.4 to 59.0) and 3 year relapse free survival of 40.5% compared to 3 year overall survival of 85.7% (53.9 to 96.2) and 3 year relapse free survival of 79.0% (47.9 to 92.7) in patients with normal PET scans.

Conclusion: There is a significant risk of relapse and death in T4 HNSCC tumours, particularly in those with residual disease following radiotherapy. However, IMRT, either alone or in combination with chemotherapy or surgery, achieved 3 year locoregional control of 65.5% (95% CI 51.2%-76.5%). This is a meaningful local control rate for locally advanced disease in which local relapse confers significant morbidity.

EP-1093
Impact of comorbidity, polypharmacy and HPV status in elderly patient with oropharyngeal cancer

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Purpose or Objective: To investigate the role of HPV status, comorbidity and polypharmacy on outcomes of elderly patient with oropharyngeal carcinoma (OPC).

Material and Methods: We retrospectively reviewed a prospectively compiled cohort of elderly patients (>70 years) with newly diagnosed OPC treated with curative radiotherapy (RT)+/- systemic therapy in 2000-2013. Tumor HPV status was assessed by p16 staining. Comorbidities were quantified by Charlson Comorbidity Index (CCI). The Comorbidity-Polypharmacy Score (CPS), a validated predictor of outcome for older trauma patients, was used to take into account the number of medications as a surrogate of the severity of comorbidities. Overall survival (OS), and relapse-free survival (RFS) were calculated and compared between HPV-positive [HPV(+)] and HPV-negative [HPV(-)] cohort. Two multivariate analysis (MVA) models [one included CCI (MVA-CCI), one included CPS (MVA-CPS)] were used to confirm the prognostic value of HPV, CCI or CPS, pack-year (PY) smoking, ECOG performance status (PS), and age for OS adjusted for disease extent (T, N).

Results: Tumor HPV status was ascertained in 229 of 287 (80%) patients revealing 115 HPV(+) and 114 HPV(-). Median age was 74.8 years (range 70-93). Systemic agents were given in 48 (21%) patients [chemo 17; EGFR inhibitor 31). RT incompletion [5 (4%) vs 8 (7%), p=0.41) and unplanned RT break rates [22 (19%) vs 28 (25%), p=0.34] were similar between HPV(+) vs HPV(-) cohorts. No significant difference in distribution of CCI (p=0.30) or CPS score (p=0.22) between HPV(+) vs HPV(-) cases. CCI and CPS have a moderate correlation (Kappa: 0.51). Median follow-up was 4.6 years. HPV(+) patients had better 5-year OS (59% vs 32%, p<0.001) and RFS (75% vs 54%, p<0.001) compared to HPV(-). MVA adjusted for T and N-category confirmed HPV(+) status was the strongest prognostic factor (PF) for OS [MVA-CCI: HR 0.52 (95% CI 0.34-0.79), p=0.002; MVA-CPS: HR 0.56 (0.36-0.85), p=0.007]. CPS was also a PF for OS [HR 1.05 (1.00-1.11), p=0.044]. CCI was not significant (p=0.17). ECOG PS was also a PF [MVA-CCI: HR 2.31; MVA-CPS: HR 2.32, both p<0.001]. Smoking (>20 PY) was prognostic in MVA-CCI (HR 1.62, p=0.035) and marginally prognostic in MVA-CPS (HR 1.56, p=0.056). Age was not significant in MVA-CCI (p=0.16) or MVA-CPS (p=0.65) models.

Conclusion: In elderly patients with OPC, HPV status is a strong PF for OS. Neither chronologic age nor CCI is prognostic. Higher CPS is correlated with poorer OS, which implies that inclusion of polypharmacy in addition to comorbidity might be a better reflection of competing mortality risk in this population, and attention to competing mortality causes may influence outcome for this complex patient group. Further validation of prognostication of CPS in elderly OPC population is warranted.

EP-1094
Total tumour volume predicts response in head and neck cancer: regression tree analysis and models

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Purpose or Objective: While the total tumor volume(TTV) has been extensively analyzed in literature as a prognostic factor in head and neck cancer, there exist no studies to date that have analysed the impact of TTV on response to chemo radiation(CCRT), particularly from the Indian subcontinent and in patients treated with IMRT. We did a prospective study that attempted to elucidate the role of total tumor volume as a prognostic factor in locally advanced oropharyngeal and hypopharyngeal cancer.

Material and Methods: We enrolled 87 patients of Stage III-IV cancer of the oropharynx(57),and hypopharynx(30) , who received definitive CCRT with IMRT. The TTV was the sum of the gross tumour volume and the nodal volume delineated on the planning CT scan. The impact of TTV on Locoregional relapse free survival (LRFS), response to chemoradiation (RR) and overall survival (OS) was assessed over a follow up of 2 years. Survival analysis was by kaplan meir method with log rank testing for assessing significance between groups Univariate analysis was by mann-whitney/chi square test ,multivariate analysis was by logistic regression forward stepwise method and a model to predict response was generated .ROC curve analysis was done for calculating cut offs. A classification tree for Response was generated using CART analysis (CHAID method).

Results: The 2 year OS, LRFS, and RR were 64%, 56% & 65%. The T stage distribution was T2(5) , T3(42) ,T4(42) & N stage was N0 (11),N1(28),N2A(10),N2B (17),N2C(17) & N3(4).The mean TTV was 67.4 cc (8-191)cc. The mean TTV in Responders/ non responders was 51.9 cc / 95.5cc.On multivariate analysis, the TTV was a significant prognostic factor for RR & LRFS but not for OS. ROC curve analysis found cut off of 48 cc for RR with AUC of 0.778(0.672-0.884) ans sensitivity/specificity of 87% /60%.The RR for the <48cc and