Purpose or Objective: Locally Advanced Non-Small Cell Lung Cancer (LA-NSCLC) or stage (St) III disease accounts for about 30% of patients with NSCLCs. Treatment strategies include definitive chemoradiation or induction treatment (IT) followed by radical surgery. The main end-points of inductive treatment are resection rate with pneumonectomy rate, and pathological downstaging.

Material and Methods: Pooled data from four consecutive trials published on patients receiving radiochemotherapy from 1992-2007 have been analyzed. The study group comprised 199 patients (87% males, 63±9 mean age, 48% squamous cell carcinoma (SCC), 65% cStIIIA). Patients have been treated with involved field radiotherapy and concurrent carboplatin or cisplatin + 5-FU (old drugs), weekly Gemcitabine only at 300mg/m2 (GEM) and Cisplatin at systemic dose plus weekly Gemcitabine at 300mg/m2 (P-GEM).

Results: Present series confirms the impact on survival endpoints (OS, DFS, DSS) of surgical resection, pathological downstaging and tumor response. The indication for resection (HR = 2.7 [95%CI: 1.9; 3.7]; p<0.0001), together with response to radiochemotherapy (HR = 2.3 [95%CI: 1.6; 3.3]; p<0.0001) were the strongest predictors of OS. The most significant predictors of DSS were surgery (No resection vs. Resection - HR = 2.0 [95%CI:1.3; 2.9]; p<0.001), and the presence of response to induction radiochemotherapy (No response vs Partial Response vs. - HR = 2.0 [95%CI:1.2; 3.1]; p=0.004). Concurrent compounds influenced pathological downstaging (4% pStage 0 with old drugs vs. 23% with GEM vs. 36% with P-GEM; p=0.01), response rate (79% and 80% of partial response with GEM and P-GEM vs. 68% with old drugs; p= 0.002) and pneumonectomy rate (33% of patients treated with old drugs, 29% of those treated with GEM, and 19% of those treated with P-GEM). Squamous histology influenced response rate (80% vs. 69%; p=0.009) and disease specific survival (median DSS time was 30 months vs. 20 months).

Conclusion: The roles of major survival predictors (particularly, surgery, pathological downstaging) are discussed. The availability of reliable surrogate end-points (e.g.: pathological downstaging) may drive clinical strategy in the short time combining concurrent compounds and tumor histology.

Purpose or Objective: The aim of our study was to evaluate the efficacy and safety of brain stereotactic radiotherapy (SBRT), and potential interactions with mutational status/systemic therapies of patients treated in our Institute.

Material and Methods: We conducted a retrospective study of 85 patients (150 lesions) receiving SBRT for brain metastases (mets) of lung cancer between 01/2012 and 03/2015.

Results: 90% patients were smokers and the most frequent histology was adenocarcinoma (ADK: 74%). In 99 patients with mutational analysis: 35%, 8%, and 56% had EGFR/ALK, others (KRAS/PI3K), or no mutations, respectively. The median GPA-DS score was 2.5 (0.5-3.5). The median estimated biologic equivalent dose (BED) was 57.6 Gy (16.7-57.6). 35 patients (41%) had a whole brain radiation therapy (WBRT) prior or after SBRT. The median follow-up from SRT was 1.6 years. The 2-year local control (LC) was 54% (95%CI: 40-68%). Histology (non-ADK: HR=7.2) and others mutations (KRAS/PI3K: HR=5.8) were associated with lower LC in the multivariate analysis (MVA). The type of systemic treatment, or its delay before SBRT, as well as other variables (history of WBRT, GPA, number of brain mets) did not correlate with LC in the MVA.

Conclusion: In our study, K-Ras mutational status seemed to be associated with poorer local control. The impact of mutational status should be evaluated in a larger set of patients.