

# Superior sulcus non-small cell lung cancers (Pancoast tumors): the importance of multidisciplinary management

**Objective:** Despite standard neoadjuvant chemoradiotherapy (chemoRT), Pancoast tumors still present unique technical and oncologic challenges with substantial risks of incomplete resection, local (LR) and distant (DR) recurrence. To optimize outcomes, during the past 20 years we have used a multidisciplinary care paradigm with Medical and Radiation Oncology, and pre- and intraoperative involvement of Spine Neurosurgery (SNS) for most T3 and all T4 tumors. SNS involvement permitted resection of transverse process for T3 and vertebral body resection for T4 tumors in addition to chest wall and pulmonary resection.

**Methods:** Retrospective analysis of single institution, prospectively managed database, including patients (pts) undergoing curative-intent resection for a Pancoast tumor. Pts were grouped as clinical (c) T3 with combined resection with SNS, cT3 without SNS, and all cT4 patients. R0 resection, overall survival (OS), progression-free survival (PFS), LR, and DR were evaluated. OS, PFS compared between groups using log-rank test. Cumulative incidence of LR and DR compared using Gray's test.

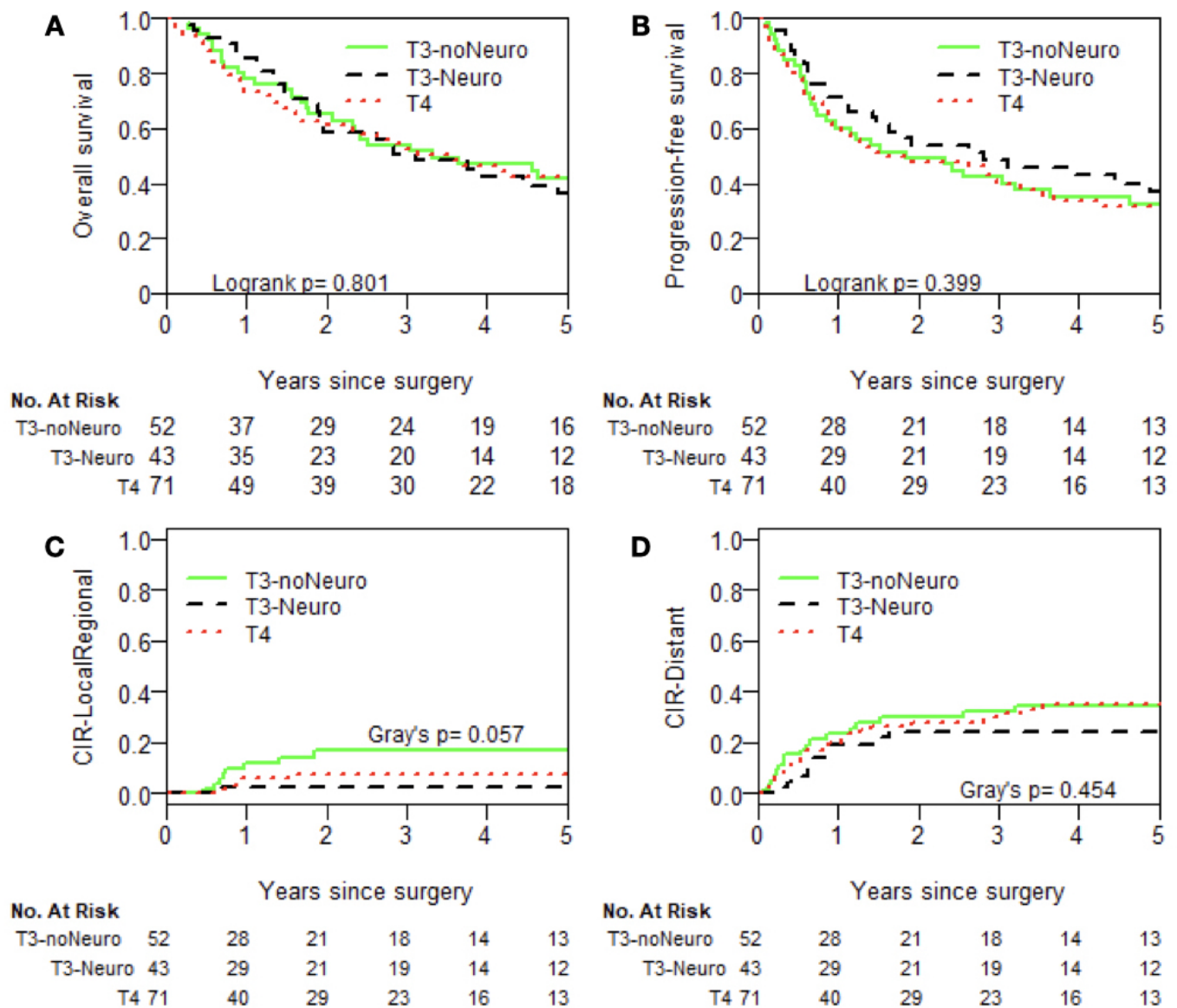
**Results:** From 2000-2018, 166 pts underwent surgery: median age 58 years, 88 (53%) male, 164 current or former smokers (median 49 pack years). Median tumor size on CT (n=157) and PET SUV (n=129) were 4.9cm and 12.8 for cT3; 7.8cm and 15.9 for cT4. Adenocarcinoma was most common histology (n=76, 46%). 52 (31%) tumors were cT3 with SNS, 43 (26%) cT3 without SNS, 71(43%) cT4. Most pts received neoadjuvant concurrent platinum-based chemoRT (n=137, 83%), median dose 50 Gy, while 11 pts (7%) had chemo only, 1 pt (0.6%) RT only. Lobectomy was most common form of lung resection (n=138, 83%). Final pathology showed, complete (CR) or major pathologic response (MPR, <10% viable tumor) in 75 (45%) pts. 52 (31%) tumors were cT3 with SNS, 43 (26%) cT3 without SNS, 71(43%) cT4, and R0 resection was achieved in 49 (94%), 37 (86%) and 60 (85%) respectively (p=0.2). No significant differences were noted in OS (p=0.801), PFS (p=0.399) or DR (p=0.454) among the 3 groups. A lower cumulative incidence of LR was seen in the cT3 SNS versus the cT3 non-SNS pts (pairwise comparison, p=0.031).

**Conclusions:** Our multidisciplinary treatment paradigm was associated with a high frequency of R0 resection, CR or MPR, and outcomes for T4 tumors that were indistinguishable from those for T3 tumors. cT3 tumors managed without SNS involvement were associated with higher rates of LR.

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**Figure 1:** Overall survival (OS) [A], progression-free survival (PFS) [B], locoregional recurrence (LR) [C], and distant recurrence (DR) [D] of the T3 without SNS, T3 with SNS, and T4 groups. CIR = Cumulative incidence of recurrence  
No Neuro = without SNS; Neuro = SNS