

## Treatment of Stage I Nsclc in High Risk Patients: Surgery Versus Radiotherapy

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Surgery represents the cornerstone of therapy for NSCLC, however in high risk patients, surgical approach may be discouraged due to high rates of postoperative morbidity and mortality. In not surgically treatable patients, radiation therapy, in particular, stereotactic ablative radiotherapy (SABR) has replaced conventional radiotherapy due to higher local control rate, lower toxicity and lower adverse effect on quality of life and pulmonary function [1].

Several methods have been proposed to identify perioperative risk of patients undergoing surgery for lung cancer: the Thoracscore assessed the risk of in hospital mortality, another system identified predictors of prolonged hospitalization after lung lobectomy and a scoring system predicting the risk of ICU admission after major lung resection was proposed [2-4].

To evaluate the risk in lung surgery we need to consider factors related to the patient (age, respiratory function and other comorbidities) and factors related to the surgical procedure (amount of the resection and surgical approach).

Advanced age is no longer considered a contraindication to surgery, a careful evaluation and selection is necessary to identify patients who will benefit most from resection [5]. General status of the patient, considering all the comorbidities should be considered. Respiratory function is the main factor in the preoperative evaluation and exact criteria have been established to consider a patient fit for surgery [6].

In patients with marginal pulmonary function or significant comorbidities, sublobar resections are a valid alternative, moreover video assisted thoracoscopic procedure gives the potential benefits of equivalent oncologic outcomes and less morbidity [7].

Lung lobectomy is the treatment of choice in early stage NSCLC [7]. In high risk patients this procedure cannot be performed and a wedge resection or an anatomic sublobar segmentectomy is usually carried out, moreover this procedure has been proposed as curative in minimally invasive adenocarcinoma, formerly bronchioalveolar carcinoma [8].

In our institution 151 patients underwent wedge resection for cT1-2 NSCLC. The 5 year survival for cT1 was 60.3%, for cT2 was 40.8%. We observed a mortality of 0.6% (1 patient deceased for a bleeding duodenal ulcer) and a morbidity of 17.3% (27 patients: 9 pulmonary complication, 5 cardiac complications, 6 hemorrhages, 3 prolonged air leak, 2 empyema, 2 chylotoraces). The high rate of comorbidities can be explained by the fact that all these patients were considered at high risk, not fit for lobectomy and consequently more inclined to develop complications. Our results were comparable to those reported in literature.

SABR has recently gained an important role in the treatment of NSCLC, in particular it should be regarded as the standard of care for patients with inoperable Stage I and should be at least considered for marginally operable patients [9].

The excellent local control and low toxicity of SABR have challenged the assumption that surgery is the preferred treatment for patient with potentially operable stage I NSCLC [1].

This technique has reported a 3 year survival of 37-53% for patients receiving a biologic equivalent dose of less than 100 Gy and of 48-91% for patients receiving a biologic equivalent dose of 100 Gy or more. The reported rate of complication was 0-10% for the patients in the first group and 0-11% for the patients in the second group, morbidities included pneumonitis, rib fractures, pleural effusion and skin reaction [10].

Surgery remains the standard for early stage lung cancer. Recent studies showed that SABR reported results comparable to operative treatment. Randomized comparative trials of surgery and SABR are underway to define their role in the treatment of lung neoplasm.

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