Document Title | Guidelines for the Management of Lung Cancer (Non Small Cell Lung Cancer, Small Cell Lung Cancer and Mesothelioma)
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Document Date | January 2010– version 4 – FINAL VERSION
Document Purpose | This guidance has been produced to support the diagnosis, treatment and care of lung cancer. Supplementary guidance is contained within the following Network Documents
- Systemic Therapies CMG
- Imaging
- Pathology Guidelines

Treatment decisions for individual patients require the weighing of a multiplicity of factors, which cannot all be accounted for in a CMG. The CMG provides a description of the range of treatment options available for a clinical scenario. To maximise the benefit of multiprofessional working management strategies for the individual are best discussed with a multidisciplinary meeting (MDM)

Authors | Dr Jonathan McAleese, Consultant Clinical Oncologist and NICaN Clinical Lead for Lung Cancer

References | See Appendix IV

Consultation Process | Consultation was via the authors and the Lung Cancer Regional Group. Following discussion of Version 2 at the June 2009 meeting the following changes were made:
- Content relating to imaging withdrawn and reference made to the Imaging Guidelines document
- Follow up sections amended to reflect general principle of follow up in light of lack of evidence instead of the tables/algorithms contained within version 2
- New TNM Staging, IASCC 2009 included

It was agreed at the Lung Regional Group meeting of 15th October that version 3 would be signed off in light of these proposed changes and the document was subsequently issued electronically on 19th October for a final two week consultation. Version 4 was circulated on 12th January 2010 following changes made by Dr McAleese with regards to referencing the systemic therapies guidelines and the radiotherapy guidelines for thoracic radiotherapy
<table>
<thead>
<tr>
<th>Review Date</th>
<th>October 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>(must be within two years)</td>
<td></td>
</tr>
<tr>
<td><strong>Additional Resources</strong></td>
<td></td>
</tr>
<tr>
<td>&quot;Clinical protocol for the use of radiotherapy in the treatment of lung cancer&quot; NICC Radiotherapy Dept July 2009</td>
<td></td>
</tr>
<tr>
<td>&quot;Recommendations for Cross-Sectional Imaging in Cancer Management&quot; The Royal College of Radiologists , Issue 2, August 2006 RCR Ref No. RCR (06)1 ISBN 1 905034 13 X Chapter 7 relates to the lung.</td>
<td></td>
</tr>
</tbody>
</table>
NON SMALL CELL LUNG CANCER (NSCLC)

Initial Evaluation

Scanning – please see Network Document “Imaging Guideline for Suspected and Confirmed Lung Malignancy”.

Staging should be undertaken with CT (TA).

- Sites of metastatic disease should be investigated with appropriate imaging if they would alter clinical management.
- Chest CT\(^1\) should be performed and reported and available for first MDT discussion. The reports should include clinical narrative with specific comment on primary tumour, lymph nodes and metastases.

Patients considered for curative therapy should have a staging PET scan.

Pathology.

Pathological confirmation should be undertaken. This is particularly important as the subtype of NSCLC may impact on the chance of response to systemic therapy, and choice of systemic therapy.

Bronchoscopy

The demonstration of endoluminal disease may open the possibility of endoluminal therapy. Site of tumour and extent should be documented.

TREATMENT OF LOCALISED DISEASE

T1-2 N0-1 disease should be considered as localised.

Patients with localised disease should be considered for curative treatment. The possibility of curative treatment is dependent on a number of factors not only including site of disease, but also patient related factors as to whether curative modalities (such as surgery or radiotherapy) would be tolerable. These factors include cardiorespiratory fitness and comorbidities. Patients considered for curative therapy should have a staging PET scan.

\(^1\) NICaN “Imaging Guidelines for Suspected and Confirmed Lung Malignancy”
In general the outcomes with radical surgery are better than other alternatives, and therefore surgery should be considered in the first instance. Radical radiotherapy can be considered in those not fit for surgery. Radiofrequency ablation may have a role in those not suitable for radical radiotherapy.

Potential Curative Treatments
- Radical Surgery and consideration to adjuvant chemotherapy and/or radiotherapy
- Radical Radiotherapy
- Radiofrequency Ablation

If curative treatment is not feasible then palliative approaches with a view to helping symptom control and possible disease control should be considered.

Potential Palliative Treatments
- Thoracic Radiotherapy
- Chemotherapy (should be offered to patients of good performance status as per NICE guidelines)
- Endoluminal treatments such as stent, laser or Brachytherapy
- Best supportive care

*Note: Once a patient is no longer eligible for further active anti-cancer treatment then close contact with specialist palliative care / hospice services should be undertaken.*

<table>
<thead>
<tr>
<th>Standard Treatment Stage I/II</th>
<th>Expected Outcome</th>
<th>Followed By</th>
</tr>
</thead>
</table>
| Radical Surgery              | Cure > 40%       | Adjuvant Chemotherapy ( + 5% cure)  
|                              |                  | Adjuvant Radiotherapy ( reduction in local relapse if R1) |
| Radical Radiotherapy (EBRT)  | Cure 15%         |             |
| **Palliative Treatments**    |                  |             |
| Chemotherapy                 | Disease Control -  
|                              | +MST 6wk       |
| Palliative Radiotherapy      | Symptom Control  |             |
Follow Up
Follow up should be based on which further interventions are possible.

1. If there is the potential for salvage radical therapy then follow up should be close (and consideration given to radiological follow up with eg CT) and there should be easy access to the MDM meeting. Review on a 3 to 4 monthly interval is generally advocated in guidelines (although with little randomised evidence). Consideration could be given to discharge after 5 years of follow up following radical (curative) approaches.

2. If further active treatment is possible (further chemotherapy) then follow up should be done in close liaison with oncologist.

3. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.

TREATMENT OF LOCALLY ADVANCED DISEASE

Patients with locally advanced disease may be considered for curative treatment. T1-3 N2 and dry (without pleural effusion) T4 disease should be considered as localised. Some forms of N3 disease may still be curative.

The possibility of curative treatment is dependent on a number of factors not only including site of disease, but also patient related factors as to whether curative modalities (such as surgery or radiotherapy) would be tolerable. These factors include cardiorespiratory fitness and comorbidities.

Patients considered for curative therapy should have a staging CT/PET scan.

Multimodality treatment is considered standard for most locally advanced situations. In general this is started with induction (primary) chemotherapy. Surgery and radiotherapy are both potential options following a course of induction chemotherapy. In those in whom there has been a good response to chemotherapy concurrent chemoradiation may have an advantage over radiotherapy alone. Primary concurrent chemoradiation offers increased disease control over sequential chemotherapy and radiotherapy but with increased toxicity.

Potential Curative Approaches

1. Induction chemotherapy followed by radical radiotherapy
2. Induction chemotherapy followed by radical surgery +/- post operative radiotherapy
3. Induction chemotherapy followed by radical concurrent chemoradiation
4. Primary chemoradiation plus two cycles of posterior chemotherapy

If curative treatment is not feasible then palliative approaches with a view to helping symptom control and possible disease control should be considered.

Potential Palliative Treatments
1. Thoracic Radiotherapy
2. Chemotherapy (should be offered to patients of good performance status as per NICE guidelines)
3. Endoluminal treatments such as stent, laser or Brachytherapy
4. Best supportive care

<table>
<thead>
<tr>
<th>Standard Rx Stage III</th>
<th>Followed By</th>
<th>Expected Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radical Induction Chemotherapy</td>
<td>Radical Surgery (possibly followed by post operative radiotherapy to improve local control if multiple N2 or bronchial margin +ve)</td>
<td>Cure 15%</td>
</tr>
<tr>
<td>Radical Induction Chemotherapy</td>
<td>Radical Radiotherapy</td>
<td>Cure 15%</td>
</tr>
<tr>
<td>Radical Induction Chemotherapy</td>
<td>Radical Chemoradiotherapy</td>
<td>? Cure 20%</td>
</tr>
<tr>
<td>Radical Chemoradiotherapy</td>
<td>2 cycles “posterior” chemotherapy</td>
<td>Cure 20%</td>
</tr>
<tr>
<td>Palliative Chemotherapy</td>
<td></td>
<td>Disease Control - +MST 6wk</td>
</tr>
<tr>
<td>Palliative Radiotherapy</td>
<td></td>
<td>Symptom Control</td>
</tr>
</tbody>
</table>

**Follow up**
Follow up should be based on which further interventions are possible.

1. If there is the potential for salvage radical therapy then follow up should be close (and consideration given to radiological follow up with eg CT) and there should be easy access to the MDM meeting. Review on a 3 to 4 monthly interval is generally advocated in guidelines (although with little randomised evidence).
Consideration could be given to discharge after 5 years of follow up following radical (curative) approaches.

2. If further active treatment is possible (further chemotherapy) then follow up should be done in close liaison with oncologist.

3. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.

**SPECIAL CLINICAL SCENARIOS (NSCLC)**

**Pleural Effusion (wet T4)**
This is by definition not curative and efforts should therefore be made to confirm cytologically if management would be altered. Consideration should be given to pleurodesis in patients felt to be at high risk of re-accumulation of fluid or in those in whom effusion recurs, provided prognosis is greater than 3 months. Talc pleurodesis should be undertaken before the lung becomes trapped (a degree of anticipation is required).

**SVCO**
Efforts should be made to gain histology as the management of SVCO secondary to lymphoma or SCLC differs from NSCLC. This is an indication for urgent radiotherapy or urgent SVC stent. In general symptoms respond faster to stent.

**Spinal Cord Compression**
This represents an oncological emergency. Patients should be commenced on high dose steroid (eg dexamethasone 8mg bd) and nursed flat. In general there is a higher rate of recovery to walking and neurological free survival with decompressive surgery and radiotherapy as opposed to radiotherapy alone. Referral should be to an oncologist with them subsequently consulting with a member of the surgical team. Factors such as patient symptoms and prognosis should be taken in to account when considering surgery. Surgical decompression would be considered if the prognosis is over 6 months.
GENERAL PRINCIPLES UNDERPINNING THERAPY - NSCLC

**Surgery**

The tumour is exciseable with clear margins
Suitable levels of cardiorespiratory reserve.

**Radical External Beam Radiotherapy (EBRT)**

If disease is greater than 6 cm sterilisation with EBRT is unlikely
Adequate respiratory function must be present (usually assessed clinically by exercise tolerance, FEV1 and Transfer Factor). Exact cut-offs are dependent on field size.

**Post Operative Radiotheraphy (PORT)**

Considered to areas of residual microscopic disease eg bronchial margin to improve local control. Considered if N2 nodes are positive at resection (particularly if multiple N2 nodes or highest N2 node is involved; again to increase local control).

**Post Operative (adjuvant) Chemotherapy**

Offered to patients to improve 3 year overall survival by 5% with an expected toxic death rate of 1%. Offered to those with disease greater than/equal to 4cm or Node positive.
TREATMENT OF METASTATIC DISEASE

In general metastatic disease is not curable and treatments are given to help treat symptoms and potentially control disease. There are a few clinical scenarios of low volume metastatic disease (oligometastatic) when radical (curative) treatment may still be appropriate.

Curative Scenarios
1. Solitary metastatic brain lesion and intrathoracic disease that is resectable
2. Solitary metastatic adrenal lesion and intrathoracic disease that is resectable.

Palliative Approaches
1. Thoracic Radiotherapy
2. Chemotherapy (should be offered to patients of good performance status, as per NICE guidelines).
3. Radiotherapy to metastatic sites such as brain or bone for symptom palliation
4. Endoluminal treatments such as stent, laser or Brachytherapy
5. Best supportive care

<table>
<thead>
<tr>
<th>Standard Rx Stage IV</th>
<th>Expected Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palliative Chemotherapy</td>
<td>Disease Control - +MST 6wk</td>
</tr>
<tr>
<td>Palliative Radiotherapy</td>
<td>Symptom Control</td>
</tr>
</tbody>
</table>

Follow Up
Follow up should be based on which further interventions are possible.

1. If there is the potential for salvage radical therapy then follow up should be close (and consideration given to radiological follow up with eg CT) and there should be easy access to the MDM meeting. Review on a 3 to 4 monthly interval is generally advocated in guidelines (although with little randomised evidence). Consideration could be given to discharge after 5 years of follow up following radical (curative) approaches.
2. If further active treatment is possible (further chemotherapy) then follow up should be done in close liaison with oncologist.
3. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.

**RELAPSE DISEASE**
Most relapses are not curative. A determination should be made as to whether the relapse pattern is still potentially curative (potentially salvageable with radical surgery or radiotherapy). Certain types of oligometastatic disease (solitary metastatic sites) may be amenable to radical surgery that may provide long term disease control eg solitary brain metastasis or solitary adrenal metastasis

Anticancer therapy should be considered if possible (2nd line chemotherapy). Symptom control measures should be undertaken.

**Follow Up**
Follow up should be based on which further interventions are possible.

1. If further active treatment is possible (further chemotherapy) then follow up should be done in close liaison with oncologist.
2. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.
SMALL CELL LUNG CANCER

Initial Evaluation
Scanning – please see Network Document "Imaging Guidelines for Suspected and Confirmed Lung Malignancy".
To exclude metastatic disease staging CT(brain) is generally recommended for LD patients.
Isotope Bone scan should be considered, particularly if there is clinical suspicion of bone metastases.
Staging should be undertaken with CT(TA).
Chest CT should be performed and reported and available for first MDT discussion.
The reports should include clinical narrative with specific comment on primary tumour, lymph nodes and metastases².
Patients considered for curative therapy should have consideration of a staging PET scan.

Pathology
Pathological confirmation should be undertaken. This is particularly important SCLC responds much better to chemotherapy then NSCLC.

Bronchoscopy
The demonstration of endoluminal disease may open the possibility of endoluminal therapy.

LIMITED DISEASE
Patients with limited disease (confined to a radiotherapy portal) should be considered for curative treatment. The mainstay of such treatment is multimodality treatment with chemotherapy and radiotherapy. There is good evidence that concurrent chemoradiation with twice daily fractionation may provide the best chances of cure. Not all patients can tolerate this treatment and primary chemotherapy followed by radiotherapy is also a curative option.

All patients who achieve a response to chemotherapy and chest radiotherapy should be considered for prophylactic cranial radiotherapy, which reduces the rate of brain relapse and also improves overall disease control. In general surgery is not

² NICaN “Imaging Guidelines for Suspected and Confirmed Lung Malignancy”.
employed for small cell lung cancer, however case series show good results for T1-2 N0-1 resected disease.

Curative Approaches
- Concurrent chemoradiation and prophylactic cranial radiotherapy
- Primary chemotherapy and consolidation thoracic radiotherapy and prophylactic cranial radiotherapy
- Radical surgery and adjuvant chemotherapy and prophylactic cranial radiotherapy

Palliative approaches
SCLC responds well to chemotherapy and this should be considered in most patients
- Chemotherapy
- Thoracic Radiotherapy
- Endoluminal treatments such as stent, laser or Brachytherapy
- Best supportive care

<table>
<thead>
<tr>
<th>Standard Rx</th>
<th>Expected Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radical Chemoradiation Concurrent + PCI</td>
<td>5yr Overall Survival 26%</td>
</tr>
<tr>
<td>Radical Chemotherapy + Consolidation Thoracic Radiotherapy and PCI</td>
<td>5 yr Overall Survival 20%</td>
</tr>
<tr>
<td>Palliative Chemotherapy</td>
<td>Disease Control</td>
</tr>
<tr>
<td>Palliative radiotherapy</td>
<td>Symptom Control</td>
</tr>
</tbody>
</table>

Follow Up
Follow up should be based on which further interventions are possible.
1. If there is the potential for salvage radical therapy then follow up should be close (and consideration given to radiological follow up with eg CT) and there should be easy access to the MDM meeting. Review on a 3 to 4 monthly interval is generally advocated in guidelines (although with little randomised evidence). Consideration could be given to discharge after 5 years of follow up following radical (curative) approaches.
2. If further active treatment is possible (further chemotherapy) then follow up should be done in close liaison with oncologist.
3. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.

EXTENSIVE DISEASE

Extensive disease is defined as disease which is more widely spread than a radiotherapy portal and therefore incurable. Approaches are aimed at controlling disease (SCLC responds well to chemotherapy and this should be considered in most patients) and palliating symptoms.

Palliative Approaches
- Chemotherapy
- Thoracic Radiotherapy
- Radiotherapy to metastatic sites such as brain or bone for symptom palliation
- Endoluminal treatments such as stent, laser or Brachytherapy
- Best supportive care

<table>
<thead>
<tr>
<th>Standard Rx</th>
<th>Expected Outcome</th>
<th>Possibly Followed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palliative Chemotherapy</td>
<td>Disease Control</td>
<td>PCI (if response to chemotherapy); reduces the risk of brain metastases and improves survival at 1 year by 14%</td>
</tr>
<tr>
<td>Palliative radiotherapy</td>
<td>Symptom Control</td>
<td></td>
</tr>
</tbody>
</table>

Special Clinical Scenarios (SCLC)

Pleural Effusion (wet T4)
This is by definition not curative and efforts should therefore be made to confirm cytologically if management would be altered. Consideration should be given to pleurodesis in patients felt to be at high risk of re-accumulation of fluid or in those in whom effusion recurs, provided prognosis is greater than 3 months. Talc pleurodesis should be undertaken before the lung becomes trapped (a degree of anticipation is required).

SVCO
Efforts should be made to gain histology as the management of SVCO secondary to lymphoma or SCLC differs from NSCLC. The rate of response to first line chemotherapy is high for SCLC and this can be considered as the first treatment for
SVCO secondary to SCLC. Otherwise urgent radiotherapy or urgent SVC stent should be considered. In general symptoms respond faster to stent.

**Spinal Cord Compression**

This represents an oncological emergency. Patients should be commenced on high dose steroid (eg dexamethasone 8mg bd) and nursed flat. In general there is a higher rate of recovery to walking and neurological free survival with decompressive surgery and radiotherapy as opposed to radiotherapy alone. Referral should be to an oncologist with them subsequently consulting with a member of the surgical team. Factors such as patient symptoms and prognosis should be taken in to account when considering surgery.

**Follow Up**

Follow up should be based on which further interventions are possible.

1. If there is the potential for salvage radical therapy then follow up should be close (and consideration given to radiological follow up with eg CT) and there should be easy access to the MDM meeting. Review on a 3 to 4 monthly interval is generally advocated in guidelines (although with little randomised evidence). Consideration could be given to discharge after 5 years of follow up following radical (curative) approaches.

2. If further active treatment is possible (further chemotherapy) then follow up should be done in close liason with oncologist.

3. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.

**RELAPSE**

Most relapses are not curative. Anticancer therapy can be considered (2nd line chemotherapy), to help symptom control. If relapse is more than 30 days after the 1st course of chemotherapy re-challenge may be considered. Symptom control measures should be undertaken.

**Follow Up** - should be based on which further interventions are possible.

1. If further active treatment is possible (further chemotherapy) then follow up should be done in close liason with oncologist.

2. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.
MESOTHELIOMA

Initial Evaluation

Scanning
Staging should be undertaken with CT(TA).

Pathology
Pathological confirmation should be undertaken. This is particularly important given the medico-legal aspects of mesothelioma. Pathological subtyping is of prognostic significance

LOCALISED DISEASE
Curative treatment for mesothelioma has not been clearly demonstrated. It may be considered with limited sites of pleural disease in younger patients with good cardiopulmonary reserve.

LOCALLY ADVANCED/ METASTATIC
This is essentially palliative.
Potential Palliative Treatments
- Chemotherapy (should be offered to patients of good performance status)
- Thoracic Radiotherapy
- Best supportive care

SPECIAL CLINICAL SCENARIOS (MESOTHELIOMA)

Pleural Effusion
This is by definition not curative and efforts should therefore be made to confirm cytologically if management would be altered. Consideration should be given to pleurodesis in patients felt to be at high risk of re-accumulation of fluid or in those in whom effusion recurs, provided prognosis is greater than 3 months. Talc pleurodesis should be undertaken before the lung becomes trapped (a degree of anticipation is required).

SVCO
Efforts should be made to gain histology as the management of SVCO secondary to lymphoma or SCLC differs from mesothelioma. This is an indication for urgent radiotherapy or urgent SVC stent. In general symptoms respond faster to stent.
Spinal Cord Compression
This represents an oncological emergency. Patients should be commenced on high dose steroid (e.g., dexamethasone 8mg bd) and nursed flat. In general there is a higher rate of recovery to walking and neurological free survival with decompressive surgery and radiotherapy as opposed to radiotherapy alone. Referral should be to an oncologist with them subsequently consulting with a member of the surgical team. Factors such as patient symptoms and prognosis should be taken in to account when considering surgery.

Follow Up
Follow up should be based on which further interventions are possible.

1. If there is the potential for salvage radical therapy then follow up should be close (and consideration given to radiological follow up with eg CT) and there should be easy access to the MDM meeting. Review on a 3 to 4 monthly interval is generally advocated in guidelines (although with little randomised evidence). Consideration could be given to discharge after 5 years of follow up following radical (curative) approaches.
2. If further active treatment is possible (further chemotherapy) then follow up should be done in close liason with oncologist.
3. If further treatment will be management of symptom control medication then follow up may best be done by Respiratory team or GP.

RELAPSE
Efforts should be made to effect good symptom control.
Further lines of chemotherapy may be considered in suitable patients on a symptomatic basis.

<table>
<thead>
<tr>
<th>TMN Stage Grouping</th>
<th>TX</th>
<th>N0</th>
<th>M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occult carcinoma</td>
<td>TX</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage 0</td>
<td>Tis</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IA</td>
<td>T1a, b</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IB</td>
<td>T2a</td>
<td>N0</td>
<td>M0</td>
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<tr>
<td>Stage IIA</td>
<td>T1a, b</td>
<td>N1</td>
<td>M0</td>
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<tr>
<td></td>
<td>T2a</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T2b</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>T2b</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T3</td>
<td>N0</td>
<td>M0</td>
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<td>Stage IIIA</td>
<td>T1, T2</td>
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<td></td>
<td>T3</td>
<td>N1,N2</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T4</td>
<td>N0, N1</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIIB</td>
<td>T4</td>
<td>N2</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>Any T</td>
<td>N3</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Any T</td>
<td>Any N</td>
<td>M1a, b</td>
</tr>
</tbody>
</table>

Staging TNM (NSCLC)

T (Primary Tumour)

TX Primary tumor cannot be assessed, or tumor proven by the presence of malignant cells in sputum or bronchial washings but not visualized by imaging or bronchoscopy.

T0 No evidence of primary tumor

Tis Carcinoma in situ

T1 Tumor ≤3 cm in greatest dimension, surrounded by lung or visceral pleura, without bronchoscopic evidence of invasion more proximal than the lobar bronchus (i.e., not in the main bronchus)^

T1a T1a Tumor ≤2 cm in greatest dimension

T1b T1b Tumor >2 cm but ≤3 cm in greatest dimension

T2 Tumor >3 cm but ≤7 cm or tumor with any of the following features (T2 tumors with these features are classified T2a if <5 cm)

- Involves main bronchus, >2 cm distal to the carina
- Invades visceral pleura
- Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung

T2a Tumor >3 cm but ≤5 cm in greatest dimension

T2b Tumor >5 cm but ≤7 cm in greatest dimension

T3 Tumor >7 cm or one that directly invades any of the following:

- chest wall (including superior sulcus tumors), diaphragm, phrenic nerve, mediastinal pleura, parietal pericardium;
- or tumor in the main bronchus <2 cm distal to the carina^

But without
involvement of the carina;
or associated atelectasis
or obstructive pneumonitis of the entire lung
or separate tumor nodule(s) in the same lobe

T4 Tumor of any size that invades any of the following:
mediastinum, heart, great vessels, trachea, recurrent
laryngeal nerve, esophagus, vertebral body, carina;
separate tumor nodule(s) in a different ipsilateral lobe

N (Regional Lymph Nodes)

NX Regional lymph nodes cannot be assessed.
N0 No regional lymph node metastasis
N1 Metastasis in ipsilateral peribronchial and/or ipsilateral hilar lymph nodes and
intrapulmonary nodes, including involvement by direct extension
N2 Metastasis in ipsilateral mediastinal and/or subcarinal lymph node(s)
N3 Metastasis in contralateral mediastinal, contralateral hilar, ipsilateral or
contralateral scalene, or supraclavicular lymph node(s)

M (Distant Metastasis)

MX Distant metastasis cannot be assessed
M0 No distant metastasis
M1 Distant metastasis
M1a Separate tumor nodule(s) in a contralateral lobe; tumor with pleural nodules or
malignant pleural (or pericardial) effusion
M1b Distant metastasis

a The uncommon superficial spreading tumor of any size with its invasive component limited to the bronchial wall, which may extend
proximally to the main bronchus, is also classified as T1.

b Most pleural (and pericardial) effusions with lung cancer are due to tumor. In a few patients, however, multiple cytopathologic
examinations of pleural (pericardial) fluid are negative for tumor, and the fluid is nonbloody and is not an exudate. Where these
elements and clinical judgment dictate that the effusion is not related to the tumor, the effusion should be excluded as a staging
element and the patient should be classified as T1, T2, T3, or T4.
Appendix II PERFORMANCE STATUS SCALE (ECOG)³

GRaDE

0  - Fully active, able to carry on all predisease performance without restriction (Karnofsky 90-100).

1  - Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g. light house work, office work (Karnofsky 70-80).

2  - Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours (Karnofsky 50-60).

3  - Capable of only limited self-care, confined to bed or chair more than 50% of waking hours (Karnofsky 30-40).

4  - Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair (Karnofsky 10-20).

**ASSESSMENT OF PERFORMANCE STATUS (PS)**

Performance Status (PS) is a critical prognostic factor in lung cancer and an essential guide for therapy. Measurement of PS is an evaluation of the patient’s activity levels at a specific point in time, and should not be influenced by either the patient’s self perception based on previous levels of activity or subjective impressions of the patient’s general appearance by the assessor. Specific questions by the clinician should include enquiry about how much time the patient has spent sitting or lying down during daylight hours in the past week (this can be expressed as a percentage or fraction of the day) and the most strenuous activity undertaken by the patient in the past few days. A list of activities performed in the previous three days can be useful. If the clinician is uncertain as to the patient’s exact PS, then the patient should be asked to keep an activity diary for seven days and reassessed a week later.

Appendix III Abbreviations Used

AJCC American Joint Committee on Cancer; Staging guidelines for cancer (see appendix one)
CMG Clinical Management Guideline
CT Computed Tomography Scan
CT(brain) Computed Tomography Scan of brain
CT(TA) Computed Tomography Scan of Thorax and Abdomen
CXR Chest X-Ray
DFS Disease Free Survival
EBRT External beam radiotherapy
ED Staging of SCLC; by definition disease that cannot be encompassed within a radiotherapy portal (includes metastatic disease)
IBS Isotope Bone Scan
LD Staging of SCLC; by definition disease that can be encompassed within a radiotherapy portal
M Metastasis (as in the TNM tumour staging of AJCC)
MDT Multidisciplinary Team
MST Median Survival Time
N Node (as in the TNM tumour staging of AJCC)
N2 Mediastinal lymphadenopathy (as in AJCC)
NSCLC Non-small cell lung cancer
OS Overall Survival
PCI Prophylactic Cranial Irradiation; radiotherapy given to the brain to reduce the risk of developing brain metastases
PET Positron Emission Tomography scan (undertaken with fused CT scan)
PS Performance Status; as defined by ECOG (see appendix two).
R0 Complete pathological resection
R1 Microscopic residual disease after surgical resection
R2 Macroscopic residual disease after surgical resection
SCLC Small cell lung cancer
SVC Superior Vena Cava
SVCO Superior Vena Cava Syndrome
TNM Tumour/Node/Metastases- basis of cancer staging (see AJCC)
T Tumour (as in the TNM tumour staging of AJCC)
Appendix IV References

General


Follow Up

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