The Lung Cancer Management Guidelines

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Abstract:
Management of Lung Cancer is evolving rapidly with the availability of more therapeutic options. The 2009 Lung Cancer Guidelines are updated version from the 2008 Guidelines(1) and incorporated more recent evidence as well as the 7th version of the Lung Cancer Staging systems.

Key words:
Guidelines, lung cancer, treatment

Evidence Levels

The following evidence levels (EL) were adopted for these guidelines as published previously(2):
- EL-1) High level: well conducted phase III randomized studies or metaanalysis.
- (EL-2) Intermediate level: good phase II data or phase III trials with limitations.
- (EL-3) Low level: observational/retrospectives study/expert opinions.

1. All lung cancer patients
1.1 Initial patient assessment.
1.1.1 Perform history and physical and document performance status.
1.1.2 Perform the following laboratory tests: complete blood count (CBC), differential,liver function test (LFT), lactate dehydrogenase (LDH), renal function, electrolytes, calcium, magnesium and phosphorus.
1.1.3 Two-view chest X-ray.

1.2 Diagnosis
1.2.1 Confirm microscopic diagnosis of lung cancer and to determine the histological subtypes of non small cell lung cancer.

1.3 Staging
1.3.1 Non small cell lung cancer
Obtain total body positron emission tomography/computed tomography (PET/CT) scan if available; if not available, obtain computed tomography (CT) scans of the chest and abdomen.
1.3.1.2 Magnetic resonance imaging (MRI) of the brain for stages II–IV (preferred over CT scan).
1.3.1.3 Bone scan is not indicated if PET scan is performed unless PET is negative and the patient has bone pain and/or elevated alkaline phosphates.
1.3.1.4 Perform mediastinoscopy in selected cases, i.e., clinical stages (I B–III).
1.3.1.5 Determine precise TNM staging using 7th edition (2009).
1.3.2 Small cell lung cancer
1.3.2.1 CT scan of chest and upper abdomen.
1.3.2.2 MRI of the brain.
1.3.2.3 Bone scan.
1.3.2.4 Determine the proper disease stage.

1.4 Pretreatment assessment
1.4.1 Discuss all new cases in a multidisciplinary conference.
1.4.2 Obtain pulmonary function tests if surgery or curative radiotherapy is considered.

1.5 General
1.5.1 Offer available clinical research studies.
1.5.2 Counsel about smoking cessation and pulmonary rehabilitation.

2. Non Small Cell Lung Cancer
2.1 Clinical stage I A
2.1.1 Anatomical surgical resection and mediastinal lymph node sampling.
2.1.2. No need for adjuvant chemotherapy (EL-1).
2.1.3. If optimal surgery cannot be performed, consider limited surgery (wedge resection or segmentectomy) (EL-1).
2.1.4. For positive surgical margins perform resection (EL-1). If not possible, offer curative radiotherapy (EL-2).
2.1.5. If surgical resection is not possible, offer curative radiotherapy (EL-1).
2.1.6. Follow-up and surveillance as per section 2.8 (follow-up of nonsmall cell lung cancer).

2.2 Clinical stage I B
2.2.1 Anatomical surgical resection mediastinal lymph node sampling (EL-1) or dissection (EL-3).

2.2.2 For lesions ≥4 cm or high-risk features (poorly differentiated, wedge resection, minimal margins, vascular Invasion), consider adjuvant chemotherapy. (EL-2).

2.2.3 Chemotherapy of choice: four to six cycles of cisplatin (carboplatin only if cisplatin is contraindicated) with docetaxel, gemcitabine or vinorelbine (EL-1) or carboplatin and paclitaxel.

2.2.4 If optimal surgery cannot be performed, consider limited surgery (wedge resection or segmentectomy) (EL-1).

2.2.5 For positive surgical margins, perform reresection (EL-1) and, if not possible, offer curative radiotherapy (EL-2).

2.2.6 If surgical resection is not possible, offer curative radiotherapy (EL-1).

2.2.7 Follow-up and surveillance as per section 2.8 (follow-up of nonsmall cell lung cancer).

2.3 Clinical stage II A

2.3.1 Anatomical surgical resection with lobectomy pneumonectomy and mediastinal lymph node sampling (EL-1) or dissection (EL-3).

2.3.2 Offer adjuvant therapy as per 2.2.3 (EL-1).

2.3.3 If optimal surgery cannot be performed, consider limited surgery (wedge resection or segmentectomy) (EL-1).

2.3.4 For positive surgical margins, perform reresection (EL-1) and, if not possible, offer curative radiotherapy (EL-2).

2.3.5 If surgical resection is not possible, offer curative radiotherapy (EL-1).

2.3.6 Follow-up and surveillance as per section 2.8 (follow-up of nonsmall cell lung cancer).

2.4 Clinical stage II B

2.4.1 Anatomical surgical resection and mediastinal lymph node sampling (EL-1) or dissection (EL-3).

2.4.2 Offer adjuvant therapy similar to 2.2.3 (EL-1).

2.4.3 Superior sulcus tumor patients should be induced by cisplatin/etoposide with concurrent radiation therapy followed by surgical resection (EL-2). Assess disease extent by using MRI at baseline and preoperatively.

2.4.4 For T3 N0 M0, perform en-bloc resection (EL-1).

2.4.5 If optimal surgery cannot be performed, consider limited surgery (wedge resection or segmentectomy) (EL-1).

2.4.6 For positive surgical margins, perform reresection (EL-1) and, if not possible, offer curative radiotherapy (EL-2).

2.4.7 If surgical resection is not possible, offer curative radiotherapy (EL-1).

2.4.8 Follow-up and surveillance as per section 2.8 (follow-up of nonsmall cell lung cancer).

2.5 Clinical stage III A

2.5.1 For N2 disease, offer neoadjuvant concurrent chemoradiotherapy (EL-1) and assess response. If resectable, offer surgery. For nonresectable tumors, continue with the appropriate treatment based on disease status.

2.5.2 If positive N2 disease is discovered during surgery by frozen section, abort surgery if pneumonectomy is required (EL-2).

2.5.3 Incidental pathological N2 disease, adjuvant chemotherapy is indicated (EL-1) and radiotherapy can be considered (EL-3).

2.5.4 For superior sulcus tumor, offer treatment similar to 2.4.3 (EL-2).

2.5.5 For T4 (two nodules in ipsilateral separate lobes), offer pneumonectomy followed by adjuvant chemotherapy.

2.5.6 T4 (mediastinal involvement or main airway involvement), offer surgery if potentially curative; if not possible, offer definite concurrent chemoradiotherapy (2.5.1)

2.5.7 For non-N2 stage III A, not specified above, offer surgical resection with adjuvant chemotherapy (EL-1). Adjuvant radiotherapy may be considered (EL-3).

2.5.8 Follow-up and surveillance as per section 2.8 (follow-up of nonsmall cell lung cancer).

2.6 Clinical stage III B and unresectable III A

2.6.1 Offer concurrent chemoradiotherapy followed by chemotherapy. Surgical resection for selected cases could be offered.

2.6.2 Follow-up and surveillance as per section 2.8 (follow-up of nonsmall cell lung cancer).

2.7 Stage IV (and III B with pleural effusion)

2.7.1 First line therapy

2.7.1.1 Stage M2a (III B with pleural effusion), assess the need for thoracentesis and pleurodesis. Offer systemic therapy as below.

2.7.1.2. No brain metastases/no prior treatment.

A. Good performance status 0–1 and some borderline 2: offer platinum doublet (cisplatin or carboplatin with docetaxel, paclitaxel or gemcitabine) (EL-1).

• Nonsquamous cell lung cancer and no contraindication to bevacizumab: consider carboplatin/paclitaxel/bevacizumab/avastin (EL-1).

• Nonsquamous cell lung cancer: consider cisplatin/pemetrexed (EL-1).

• Nonsmoker patients with adenocarcinoma and EGFR mutation: consider gefitinib (EL-2).

B. Poor performance status 2 and 3: consider erlotinib; if not available, consider single-agent therapy (EL-2).

C. Performance status of 4: palliative care.

2.7.1.3. With brain metastases.

• Consider surgery for patient with single brain metastasis.

• Refer to radiation oncology for local treatment of the central nervous system (CNS) disease.

• After CNS disease control, start systemic therapy as in 2.7.1.2.

2.7.1.4. Isolated adrenal metastasis: consider surgical resection (confirm histologically before surgery).

2.7.2. Maintenance chemotherapy

2.7.2.1 Stage IV NSCLC who did not progress after first-line platinum-based chemotherapy may be considered for maintenance chemotherapy.
2.7.2.2. Maintenance with either one of the following drugs: pemetrexed (nonsquamous cell cancer) or docetaxel (EL-2).

2.7.3. Previously treated patient.

2.7.3.1. For second-line, consider erlotinib, pemetrexed or docetaxel (EL-1) if not used as first-line or maintenance.

2.7.3.2. For third-line therapy, consider erlotinib.

Follow-up and surveillance as per section 2.8 (follow-up of nonsmall cell lung cancer).

2.8 Follow-up of nonsmall cell lung cancer
Evaluation includes: History and physical examination, laboratory and CT scan of the chest.

2.8.1. For resected tumor stage I–III: every 6 months for 2 years and then annually for 5 years.

2.8.2. Stage III treated with combined therapy: evaluate every 3–4 months for 2 years and then annually for 5 years.

2.8.3. Stage IV: evaluation every 2–3 months.

3. Small cell lung cancer

3.1.1 Limited stage Offer cisplatin/etoposide with radiation therapy and then consolidate with two cycles of cisplatin/etoposide (EL-1). May substitute cisplatin with carboplatin in patients with neuropathy, renal dysfunction or hearing problem.

3.1.2. After definitive therapy with CR or near-CR, offer prophylactic cranial irradiation (PCI) (EL-1).

3.1.3. For very limited stage (T1-2 N0 confirmed by mediastinoscopy), offer surgical resection followed by chemotherapy, radiotherapy and prophylactic brain radiotherapy (EL-2).

3.1.4. Follow-up and surveillance as per section 3.3.

3.2 Extensive stage

3.2.1. Offer cisplatin/etoposide or cisplatin/irinotecan x six cycles (EL-1).

3.2.2. After definitive therapy with evidence of response and good performance status, offer PCI (EL-1).

3.2.3. For previously treated patients who relapsed in less than 6 months from initial treatment, offer topotecan (EL-1) or cyclophosphamide adriamycin and vincristin (CAV), or camptozar.

3.2.4. For relapse after 6 months from initial treatment, may use original regimen.

3.2.5. Follow-up and surveillance as per section 3.3.

3.3 Follow-up and surveillance

3.3.1. Evaluation includes: history and physical examination, laboratory data and CT scan of the chest and upper abdomen.

3.3.2. Limited stage: evaluation every 3 months for the first 2 years and then annually for 5 years.

3.3.3. Extensive stage: evaluation every 2 months for the first 2 years.

References


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