Kent and Medway Cancer Collaborative

Oncological Treatment of Lung Cancer

Pathway of Care

Kent & Medway Cancer Collaborative

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Oncology Provision

1.0 Introduction and background

This document has been written to provide guidance on the treatment of lung cancer in the Kent & Medway Cancer Collaborative. Reference should also be made to NICE clinical guideline NG122 March 2119 https://www.nice.org.uk/guidance/ng122

Radiotherapy schedules are as defined in the Kent Oncology Centre Quality System Clinical Protocols.

All patients will be considered for entry into a clinical trial (see appendix A).

See Collaborative chemotherapy prescribing protocols for details of chemotherapy / anti-cancer regimens.

All patients should be discussed within a multidisciplinary team meeting before commencing initial treatment. All patients will be reviewed and assessed and where appropriate (and of adequate performance status), offered chemotherapy and/ or radiotherapy, including Stereotactic Ablative Radiotherapy (SABR).

All chemotherapy regimens listed within this document are delivered at either Maidstone and Tunbridge Wells NHS Trust, Dartford and Gravesham NHS Trust, Medway NHS Foundation Trust or East Kent Hospitals University NHS Foundation Trust.

The thoracic oncologists provide a comprehensive service for NICE approved treatments. For those treatments which are not approved by NICE and are not commissioned locally or via the cancer drugs fund applications may be made where appropriate through the Individual Funding Request route. Some treatments may only be available within an “Additional Private Care” framework.

Please note, some of the drugs / doses recommended within this document are outside of the UK licensed marketing authorisation.

2.0 Non-small cell lung cancer

2.1 Molecular testing in NSCLC

The NOG recommends testing of all non-squamous NSCLC for EGFR mutations, ALK translocations and ROS 1. We recommend PDL1 immunohistochemistry in all cases of advanced or recurrent NSCLC. In selected cases further molecular testing may be appropriate (KRAS NTRK, MEK, MET, BRAF V600E) however this will currently require funding approval.

2.2 Adjuvant treatment

For Stage Ib (>4cm) to IIIb completely resected NSCLC with good performance status (WHO 0-1):

- Cisplatin and oral Vinorelbine for 4 cycles
- Cisplatin + I.V. Vinorelbine for 4 cycles
- Adjuvant radiotherapy in R1/R2 resection with positive bronchial margin and in selected cases of N2 disease

2.3 Neo-adjuvant treatment

Neo-adjuvant chemotherapy +/- radiotherapy may be offered for selected cases.

2.4 Palliative treatment

2.4.1 Advanced NSCLC

For guidance on the prescribing in advanced NSLC please refer to St Luke's chemotherapy algorithm: https://stlukescanceralliance.co.uk/wp-content/uploads/2019/09/NSCLC-V18-9.19.pdf

2.4.2 Subsequent lines of therapy

It may be appropriate to offer further lines of therapy in selected patients who remain of good performance status (PS 0/1).

Choice of systemic anti-cancer therapy will be dictated by previous treatment. Some patients may benefit from re-challenging with platinum based chemotherapy.

Selected patients may be candidates for referral to a phase I clinical trial unit.

2.4.3 Palliative radiotherapy

Palliative radiotherapy is indicated for symptom control. Indications include painful bone metastases, symptomatic intrathoracic disease, and spinal cord compression (impending or developing) as well as intracranial metastases.

2.4.4 Management of Superior Vena Caval Obstruction (SVCO)

In terms of the management of Superior Vena Caval Obstruction (SVCO) radiotherapy is no longer a first-line standard of care. Patients should be assessed for urgent SVC stenting through an appropriate interventional radiologist. Radiotherapy should be reserved for patients who cannot be stented for technical reasons. In the case of SVCO secondary to small cell lung cancer, primary chemotherapy is the treatment of choice.

2.5 Locally advanced NSCLC

Patients who are potentially suitable for radical treatment should all have a pre-treatment CT and CTPET scan and lung function tests.

If clinically indicated, chemoradiation patients can be considered for MRI Brain.

If resectable at diagnosis, consider surgery plus adjuvant chemotherapy.

If unresectable at diagnosis or unfit for surgery, patients should be considered for radical radiotherapy or chemoradiation with vinorelbine + cisplatin or weekly paclitaxel +carboplatin
Concurrent chemoradiotherapy will be offered to selected cases of locally advanced inoperable NSCLC, (unresectable stage III and stage II unfit for surgery with PS 0 or 1) (NICE clinical guidance 2019).
In some situations, “sequential radical” or “sequential high dose palliative” chemoradiation may be more appropriate.

All potential radical patients should be discussed at the Radical Radiotherapy MDM.

2.5.1 Maintenance/adjuvant TX for unresectable NSCLC after chemoradiation.

Durvalumab for PDL1 positive patients who have not progressed following platinum based chemoradiation therapy.

2.6 Early stage inoperable NSCLC

Where surgery is not possible for early stage disease, radical radiotherapy will be considered.
Stereotactic ablative radiotherapy can be considered for patients T1 N0 M0, T2 (<5cm) N0 M0, T3 (<5cm) N0 M0 NSCLC based on positive histology, positive PET scan or growth on serial CT scan. These lesions should be Peripheral lesions outside a 2cm radius of the main airways and bronchial tree.

3.0 Small cell lung cancer guidelines

3.1 Overview

Patients suitable for chemotherapy for SCLC should be prioritised for treatment and commence treatment as soon as possible, ideally within one week of initiation of action sheet.

For patients with bulky disease consider allopurinol for first cycle.

3.2 Extensive stage (first line)

- Atezolizumab in combination with carboplatin and etoposide for 4 cycles followed by maintenance atezolizumab monotherapy (EAMS currently closed, under NICE review)
- Carboplatin + Etoposide for up to 6 cycles
- Cisplatin + Etoposide for up to 6 cycles

- Responders will be treated with prophylactic cranial irradiation (PCI) (after completion of chemotherapy ± consolidation radiotherapy)

- Cisplatin/ carboplatin + irinotecan/ gemcitabine may be considered in rare cases eg allergic to etoposide (funding approval required)

3.3 Limited stage (first line)

Concurrent or sequential chemoradiation is the treatment of choice.

Sequential chemotherapy regimens include:

- Carboplatin + Etoposide for up to 6 cycles

- Cisplatin + Etoposide for up to 6 cycles

- Cisplatin/ carboplatin + irinotecan may be considered in rare cases e.g. allergic to etoposide (funding approval required)

- Thoracic radiotherapy and PCI after completing chemotherapy (sequential)

A pre-treatment PET will be performed prior to radical concurrent chemoradiation. Consider MRI brain.

3.4 Further lines of chemotherapy on relapse

Options include:

- CAV for up to 6 cycles
- Oral topotecan for up to 6 cycles (NICE approved if re-treatment with the previous treatment is not considered appropriate and there is a medical reason why the patients cannot have CAV. Other indications funding approval required).
- ACE for up to 6 cycles
- Consider platinum rechallenge in patients who have a durable response to first-line treatment

4.0 Malignant mesothelioma

4.1 Overview

Supportive care including optimal management of effusion as per BTS guidelines.

Surgical VATS pleurodesis for effusions.

If localised, consider referral for surgery.

4.1.1 Chemotherapy

Consider systemic chemotherapy.

First line:

- Cisplatin + pemetrexed or carboplatin + pemetrexed + bevacizumab (funding approval required) for up to 6 cycles.

Other regimens which may be considered include:

- Cisplatin + gemcitabine for up to 6 cycles
- Cisplatin + raltitrexed for up to 6 cycles. – funding approval required
- Single agent vinorelbine I.V. or oral

5.0 Malignant thymoma / Thymic carcinoma

5.1 Overview

The management of thymoma is surgical wherever possible. Chemotherapy and radiotherapy may be considered for selected patients following MDT discussion as out-lined below.

5.1.1 Chemotherapy

Chemotherapy with CAP may be indicated as follows:-

- Unresectable disease
- Pre-operative for downstaging.
- Post-operative if R1/R2 resection

5.1.2 Radiotherapy

Radiotherapy may also be considered in both pre and post-operative settings as well as palliatively.

6.0 Bisphosphonates & denosumab for bone metastases

Bisphosphonates reduce skeletal morbidity associated with bone metastases (Hillner et al, 2000; Lipton et al, 2000).

All patients with bone metastases should be considered for treatment, especially those:

- Patients with lytic bone metastases on plain radiographs.
- Patients with symptomatic bone metastases (with appropriate use of palliative radiotherapy and analgesics).
- Patients who have suffered a previous skeletal event (pathological fracture, previous radiation to a painful bone metastasis).

Choice of therapy:

- Pamidronate may be given 3 or 4-weekly (with or without chemotherapy).
- Zoledronic acid is more effective than Pamidronate at reducing skeletal complications (Rosen et al, 2001).
- Denosumab is recommended as an option for preventing skeletal-related events in adults with bone metastases if bisphosphonates would otherwise be prescribed.

7.0 Neuroendocrine tumours of lung origin

Well differentiated NETs of lung origin will be treated in accordance with the neuroendocrine algorithm / protocols as set out in the Upper GI Oncological Treatment Guidelines.

8.0 Appendix A: Clinical Trials

Refer to the local research team who will provide on request an orientation handbook, list of current trials and associated trial protocols and summaries. We are keen to support any trials supported by the NCRI locally within Kent but also refer to outside centres.

Contact numbers

MTW – Clinical Trials Office	01622 225033
Darent Valley Hospital – Clinical Trials Office	01322 428100 ext 4810
Medway Maritime Hospital – Clinical Trials Office	01634 825094

East Kent Hospitals – Clinical Trials Office:

Solid Tumours (excluding Gynae)	01227 866393
Gynae Clinical Trials	01843 234343
Haematology Clinical Trials	01227 864129

9.0 Appendix B: EGFR TKI therapy in NSCLC

Management of dermatological adverse effects of EGFR tyrosine-kinase inhibitors in NSCLC

General advice

- Provide patient education about prevention and management of skin adverse effects before EGFR TKI treatment starts. Explain that rash is not acne.
- Prevention: moisturise at least twice daily; use emollients (e.g. E45, diprobase cream, epaderm ointment) and soap substitutes (e.g. dermol 500 lotion, oilatum shower gel)
- Protect against excessive exposure to sunlight; use SPF 30 UVA and UVB protective sunscreen.

CTC 4.0 Papulopustular rash grading

Grading	Description
0	None
1	Papules and/or pustules covering <10% body surface area (BSA), which may or may not be associated with pruritus or tenderness
2	Papules and/or pustules covering 10-30% BSA, which may or may not be associated with symptoms of pruritus or tenderness; associated with psychosocial impact; limiting instrumental ADL
3	Papules and/or pustules covering >30% BSA, which may or may not be associated with symptoms of pruritus or tenderness; limiting self-care ADL; associated with local superinfection with oral antibiotics indicated
4	Papules and/or pustules covering any % BSA, which may or may not be associated with symptoms of pruritus or tenderness and are associated with extensive superinfection with IV antibiotics indicated; life-threatening consequences

Management of rash

Severity of rash	Management plan
Grade 1 toxicity (Mild)	• Continue EGFR TKI at current dose • Continue to moisturise regularly (check compliance and change emollient if necessary) • Consider topical antibiotics (1% clindamycin lotion) and/or topical steroids (1% or 2.5% hydrocortisone cream) • Use recommended appropriate shampoos if scalp affected (e.g ketoconazole, betadine or ceanel shampoo)
Grade 2 toxicity (Moderate)	• Continue EGFR TKI at current dose unless intolerable • Continue to moisturise regularly and intensify emollient use • Apply short term topical steroids (hydrocortisone 2.5% cream or pimecrolimus 1% cream as steroid sparing agent) • Apply short-term topical antibiotics (1% clindamycin cream) • Use oral antibiotic course (tetracycline for 2 weeks: oxytetracycline 500mg bd or lymecycline 408mg od) * *Prescribe as per Trust formulary Note: Avoid doxycycline as associated with photosensitivity • Consider antihistamines
Grade 3 toxicity (Severe)	• Discontinue EGFR TKI and only reinstate (at reduced dose) when skin has resolved to grade 2 or less. • Manage as for grade 2 • **Seek dermatology advice.** • Fax urgent referral to local Dermatology service.

Produced by Dr Lianne Thomas (CT2 Oncology) and Dr Maher Hadaki (Consultant Clinical Oncologist)

Adapted from Califano *et al* 2015: Expert Consensus on the Management of Adverse Events from EGFR tyrosine kinase inhibitors in the UK and Thatcher *et al* 2009: Expert Consensus on the Management of Erlotinib-Associated cutaneous toxicity.

10.0 Personnel and Contact Information

A comprehensive, up to date list of MDM contact details can be requested by NHS professionals by contacting the Kent & Medway Cancer Collaborative. Their contact telephone number is 01233 651905.

11.0 Glossary

Acronyms in common usage throughout KMCC documentation

CNB	Cancer Network Board
CYP	Children & Young People (in relation to the IOG)
DCCAG	Diagnostic Cross Cutting Advisory Group
DOG	Disease Orientated Group (NSSG/TSSG/TWG)
DVH	Darent Valley Hospital
EK	East Kent
EKHUFT	East Kent Hospitals University Foundation Trust
HoP	High Level Operational Policy
IOSC	Improving Outcomes: A Strategy for Cancer
K&C	Kent & Canterbury Hospital, Canterbury, (EKHUFT)
KMCC	Kent & Medway Cancer Collaborative
KMCRN	Kent & Medway Cancer Research Network
LSESN	London & South East Sarcoma Network
MFT	Medway Foundation Trust
MTW	Maidstone & Tunbridge Wells NHS Trust
NOG	Non Surgical Oncology Group *(Permanent oncologist sub group of the TSSGs with a specific responsibility for chemo/rad pathways and advice to the TSSG, Collaborative and GEOGRAPHICAL LOCATIONs on new drugs)*
PoC	Pathway of Care *(Collaborative agreed disease site specific clinical guidelines)*
QEQM	Queen Elizabeth the Queen Mother Hospital, Margate (EKHUFT)
QoL	Quality of life
RAT	Research and Trial Group *(Permanent sub-group of the TSSGs with a specific responsibility for taking forward the clinical trials agenda)*
RMH	Royal Marsden Hospital
RNOH	Royal National Orthopaedic Hospital
TSSG	Tumour Site Specific Group
QVH	Queen Victoria Foundation Trust Hospital, East Grinstead
UCLH	University College Hospital London
WHH	William Harvey Hospital, Ashford (EKHUFT)
WK	West Kent

12.0 Document Administration

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