Neuroimaging in Staging patients with lung Cancer
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Introduction
It is important to detect brain metastases in patients with newly diagnosed advanced lung cancer intended for curative treatment. To this end, NICE suggests considering MRI or CT head especially in stage III disease and SIGN 2014 recommends contrast CT head or MRI in II disease. It is also important to use resources appropriately. SIGN also recommends that patients with stage II do not require such imaging unless clinically indicated.

Standard:
1. All patients with N2 or stage III lung cancer being considered for curative intent should have brain imaging.
2. Patients with stage I-II lung cancer should not have unnecessary brain imaging.

Indicator:
Percentage of patients identified through lung cancer MDT having appropriate neuroimaging for staging purposes.

Target: Aim 100% compliance.

Method (1st and 2nd Audit rounds):

Data collection:
1st round: February 2015 – September 2016
2nd Round: October 2016 - July 2017

Patients’ clinical data collected from a prospectively maintained MDT cancer web based system. Patients’ imaging information collected retrospectively from RIS system and PACS for both Ayr and Crosshouse hospitals.

Inclusion criteria:
Part 1 – stage II or N2 disease (can co-exist)
Part 2 – stage I-II disease

Exclusion criteria: small cell cancer; mesothelioma; patients not intended for curative treatment.

Results (1st Audit round)

Total 529 patients 134 met criteria (both part 1 and part 2 patients)

Part 1: 43 were stage III and/or N2 10/43 (23%) had Neuroimaging (1/10 had positive results for brain metastasis)
Part 2: 91 were stage I - II disease 15/81 (16%) had Neuroimaging

• In all part 1 patients imaging, was prompted due to neurological symptoms (not for screening) so it was not done according to guidelines.
• In all part 2 patients, no imaging was inappropriate as all had neurological symptoms.

1st Action Plan

• Results presented to local respiratory physicians and disseminated to respiratory MDT oncologists and local radiology team.
• To identify appropriate patients during lung cancer MDT (new diagnosis of N2 or stage III lung cancer intended for curative treatment) for brain imaging preferably MRI, if not, contrast CT head, pending PET/CT when appropriate.
• Implementation date: 26/10/2016.
• Re-audit (part 1 patients) in 9-10 months.

Results (2nd Audit round)

Total 174 patients 46 patients for curative intent 12 patients stage III and/or N2 4/12(33%) had neuroimaging (both part 1 and 2) (part 1 only patients)

1/4 (25%) had positive result for brain metastasis.

• Imaging again was prompted by neurological symptoms and was not done for screening.
• Imaging modality was either CT head with contrast and/or MRI head.

2nd Action Plan

• Include neuroimaging guidelines in the local lung cancer quality performance indicator (QPI) to make sure this is monitored yearly.
• Re-audit in one year’s time (using larger number of patients) to check for compliance.

Conclusion

Patients with Stage III and/or N2 lung cancer planned for curative treatment represent a small group (55 patients over a 30 month period) with significant percentage in detecting brain metastases (10%, 1st round and 25% 2nd round) when partially imaging this group. In this local audit, 23% (first round) and 33% (second round) had brain imaging but due to neurological symptoms rather than compliance with guidelines. However, in accordance with guidelines, no stage I-II patients were inappropriately imaged. By adhering to NICE/SIGN 2014 guidelines there is only a minimal increase in the local radiology department workload (approximately 2 additional brain scans/month).

References