Appropriateness of PET/CT referrals for staging of non-small cell lung cancer patients at Counties Manukau District Health Board (CMDHB) from January 2011 to December 2012.

Poster No.: R-0045  
Congress: RANZCR ASM 2013  
Type: Scientific Exhibit  
Authors: S. Gerrie, C. Koch, E. Perry, J. Donald; Auckland/NZ  
Keywords: Lung, Oncology, PET-CT, Audit and standards, Staging, Cancer  
DOI: 10.1594/ranzcr2013/R-0045

Any information contained in this pdf file is automatically generated from digital material submitted to EPOS by third parties in the form of scientific presentations. References to any names, marks, products, or services of third parties or hypertext links to third-party sites or information are provided solely as a convenience to you and do not in any way constitute or imply RANZCR's endorsement, sponsorship or recommendation of the third party, information, product or service. RANZCR is not responsible for the content of these pages and does not make any representations regarding the content or accuracy of material in this file.

As per copyright regulations, any unauthorised use of the material or parts thereof as well as commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method ist strictly prohibited.

You agree to defend, indemnify, and hold RANZCR harmless from and against any and all claims, damages, costs, and expenses, including attorneys' fees, arising from or related to your use of these pages.

Please note: Links to movies, .ppt slideshows, .doc documents and any other multimedia files are not available in the pdf version of presentations.

www.ranzcr.edu.au
Purpose

Lung cancer is the leading cause of cancer-related deaths in New Zealand with a dismal 5 year survival rate of 10.4% [1]. Accurate staging of lung cancer is important for treatment and prognosis.

The incidence of lung cancer is higher within Counties Manukau District Health Board (CMDHB) compared to Auckland District Health Board (ADHB) or Waitemata District Health Board (WDHB) (34 per 100000 versus 29 per 100000 and 28 per 100000, respectively) and mortality is also higher (28 per 100000 versus 24 per 100000 and 20 per 100000, respectively) [2]. This is in part due to the relatively higher proportion of Maori and Pacific people within CMDHB and it is known that Maori have an increased incidence and mortality of lung cancer which may be related to socioeconomic status and the relatively higher smoking rate among Maori.

The National Lung Cancer Working Group (NLCWG) have set up Standards for Service Provision for Lung Cancer Patients in New Zealand [3] to try and standardise care for lung cancer patients and decrease ethnic disparities in lung cancer incidence and prognosis. These guidelines include use of PET/CT in the staging of non small cell lung cancer. The role of PET/CT in staging of lung cancer is well established, particularly for mediastinal staging.

The indication for PET/CT differs slightly between the NLCWG Standards for Service Provision for Lung Cancer Patients in New Zealand and the current Ministry of Health PET/CT referral guidelines. The Ministry of Health PET/CT referral guideline recommends PET/CT for staging of all non small cell lung cancers prior to treatment with curative intent. However, The NLCWG Standards for Service Provision recommends PET/CT for staging of proven or suspected non small cell lung cancers prior to treatment with curative intent, excluding peripheral T1aN0 tumours [3]. Middlemore Hospital currently uses the Ministry of Health guidelines.

The main purpose of our work is to audit the PET/CT referrals at Middlemore Hospital from January 2011 until December 2012 to determine if patients with non small cell lung cancer are being appropriately referred.

In particular:

1. To determine the rate of NSCLC patients for treatment with curative intent that were inappropriately not referred for PET/CT.
2. To determine the rate of NSCLC patients for treatment with palliative intent that were inappropriately referred for PET/CT.

**Methods and Materials**

772 patients with a radiologically confirmed lung lesions were presented at the thoracic multidisciplinary team meeting (MDTM) at Middlemore Hospital from January 2011 to December 2012. 269 patients with a new diagnosis of non small cell lung cancer were included. Patients with lung cancer recurrence, an alternative diagnosis, not from CMDHB, or inadequate data were excluded (n=503).

Audit information was collected from MDTM records, the electronic patient record (Concerto) and patient imaging (Impax). A devised proforma recorded patient demographics, pathological subtype TNM/stage, treatment intent (palliative, curative), treatment received and PET/CT. Staging from the MDTM was cross checked against the CT and PET/CT, if applicable.

**Results**

Of the 269 eligible patients, 104 were treated with curative intent and 165 with palliative intent.

Of the curative intent group, 95/104 (91.3%) had a PET/CT and 9/104 (8.7%) did not. Of these 9 patients, 3 had stage 1A or 2B disease and proceeded straight to surgery, 2 had lesions thought too small for imaging with PET/CT, 2 declined, 1 was deemed a poor surgical candidate, and 1 was changed to palliative intent.

Interestingly, the number of patients for curative intent who appropriately had a PET/CT increased from 84.3% in 2011 to 98.1% in 2012 likely due to the increasing role of the MDTM in decision making. Figures 1 to 4 demonstrate images for a curative intent patient that appropriately had a PET/CT and had their disease upstaged to inoperable (stage IIIb) highlighting the value of PET/CT.

Of the palliative intent group, 23/165 (13.9%) had a PET/CT. Of these patients, 17 either had a PET/CT prior to the MDTM, when they were considered potentially curative, or were considered potentially curative based on preceding investigations/imaging and are therefore in accordance with national guidelines. 5 patients (3%) had a PET/CT for
radiotherapy planning which is outside the national guidelines. In 1 patient the PET/CT was self-funded. Figure 5 shows a palliative intent patient who was referred for a PET/CT for radiotherapy planning which is outside the national guidelines.

Images for this section:

Fig. 1: Axial CT chest in a curative intent patient demonstrates a mass in the right upper lobe with findings suspicious for mediastinal invasion (T4?).
Fig. 2: Axial CT chest in the same patient demonstrates enlarged contralateral mediastinal lymph nodes (N3?).
**Fig. 3:** PET/CT in the same patient shows the right upper lobe mass almost certainly invading the mediastinum (T4).
Fig. 4: PET/CT in the same patient demonstrates FDG avid contralateral mediastinal lymph nodes (N3).
**Fig. 5:** Axial PET/CT image of a palliative intent patient who was referred for a PET/CT which demonstrates T4 disease.
Conclusion

Of the patients for treatment with curative intent, 91.3% appropriately had a PET/CT as per the national guidelines.

Of the patients for treatment with palliative intent, 13.9% had a PET/CT. The majority of these were initially considered curative and are therefore in accordance with national guidelines.

3% of the palliative intent group patients had PET/CT for radiotherapy planning which is outside the national guidelines.

Overall, the national guidelines were adhered to in the vast majority of patients and the MDTM is an appropriate forum to facilitate adherence to the national guidelines for PET/CT referral.

Personal Information

References