IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 17, Issue 8 Ver. 13 (August. 2018), PP 56-60
www.iosrjournals.org

Follow Up Chest X-Ray Post- Pneumonia

Dr. CleofinaFurtado,[1]Dr. Nagendra Singh,[2] Dr. Mohiuddin Mohammed,[3]
[1]*Core Medical Trainee 1, United Hospital North Midlands NHS trust,*
[2]*Postgradute MS Orthopaedics, Goa medical College, Bambolim*
[3]*Senior House officer, United Hospital North Midlands NHS trust,*
Corresponding Author: Dr. Cleofinafurtado

Abstract: *Each year, 0.5-1% of adults in the United Kingdom develop community-acquired pneumonia(CAP) (1). Lung cancer is known to be third most common cancer in UK (2). Many symptoms of pneumonia correlate with patients diagnosed with lung cancer. Lung cancer patients are also more susceptible to superadded infection. Hence an infective change on chest x-ray (CXR) may mask the underlying lung malignancy especially in adults >50 years old and in smokers. The cancer research UK and British Thoracic guidelines recommend a follow-up chest radiography within 6 weeks of discharge (6, 7). 100 cases of diagnosed CAP, were retrospectively identified (admitted in General medicine). Only 28 patients fulfilled the National guidelines for undergoing a follow up chest imaging. This means that potential lung cancer diagnosis may be delayed. Of the 13 patients who got readmitted with worsening pneumonia, 9 patients did not have repeat CXR in 6 weeks post their first admission and one patient was being investigated for a possible lung carcinoma. Root causes were identified and changes were recommended for improvement.*
Keywords*: Pneumonia, Malignancy*

Date of Submission: 15-08-2018 Date Of Acceptance: 03-09-2018

I. Introduction

Each year, 0.5-1% of adults in the United Kingdom develop community-acquired pneumonia (CAP). (1). This is confirmed by a CXR showing a new consolidation. Mortality rate for patients admitted with pneumonia is between 5-14% each year.Lung cancer is known to be third most common cancer in UK. (2). There were 43,500 new cases were diagnosed with Lung Cancer in year 2011. Lung cancer accounts for 1 in 5 deaths, most commonly due to late presentation (2).

Many symptoms of pneumonia correlate with patients diagnosed with lung cancer such as productive cough, haemoptysis, chest pain and breathlessness.Lung cancer patients are also more susceptible to superadded infection.Hence an infective change on CXR may mask the underlying lung malignancy especially in adults >50 years old and in smokers.Pneumonia changes generally resolve within 6 weeks.Therefore follow up CXR is advised within 6 weeks to prevent missing the diagnosis of underlying malignancy.

A total of 302 patients was included in the study on Is Post- Pneumonia Chest x ray for lung malignancy? Conducted between January 2010- 2012 (3). Of these, 53% received a follow-up chest X-ray within 6-12 weeks after admission. A total of six patients (2.0%) was diagnosed with lung cancer based on a chest X-ray within 6-12 weeks after admission. 3,398 patients diagnosed with pneumonia between 2000 and 2002 were followed up to find out the Incidence, correlates, and chest radiographic yield of new lung cancer diagnosis (4). 17 percent were known to be smokers. 40 percent of patients got a follow-up chest X-rays performed in 6 weeks. Out of which 57 cases of cancer were diagnosed at 90 days. An audit conducted by Helen Burt et al in North Bristol NHS trust found that only 55/107 (51%) fulfilled the British Thoracic guideline for undergoing follow up chest imaging (5). Among this 3 had Lung primary, 1 had pleural malignancy, 1 had lymphoma and 1 was diagnosed to have Metastatic Lung cancer in the follow up period.

The cancer research UK recommends follow-up chest radiography within 6 weeks to ensure resolution of changes(6).Follow-up chest x-rays is mandatory in all adults diagnosed with CAP radiologically according to British Thoracic guidelines (7).

The Aim of this study was to

1) Evaluate whether follow up chest x-rays were performed on adults diagnosed with Community Acquired Pneumonia (CAP) as per British Thoracic Society guidelines.
2) To assess whether patients with pneumonia were followed up by Physicians to prevent missing the diagnosis of Lung cancer.

II. Methodology

100 cases of Community acquired pneumonia diagnosed radiologically on CXR were retrospectively identified. All of these patients were admitted through emergency department and discharged from General Medicine between March to September 2017.

Inclusion Criteria's were Adults > 50 years and those diagnosed withcommunity acquired pneumonia on first CXR at time of presentation.Pre-diagnosis of lung cancer and patients who either died in hospital stay or within 6 weeks of discharge were excluded from the study. Results were collated in excel sheet and analysed.

We assessed the following:

- Further imaging has been performed 6 weeks post Pneumonia.
- Actual period of imaging modality that was performed later.
- Whether any Clinician has reviewed post CXR.
- Discharge summaries indicated the need of follow up CXR.
- Patient were readmitted with pneumonia.
- If the post CXR after 6 weeks worsens/Improves/ unchanged.

We maintained the target as 100 % of patients should have follow up CXR performed post pneumonia and 100% of post CXR should be reviewed by Clinicians

III. Results

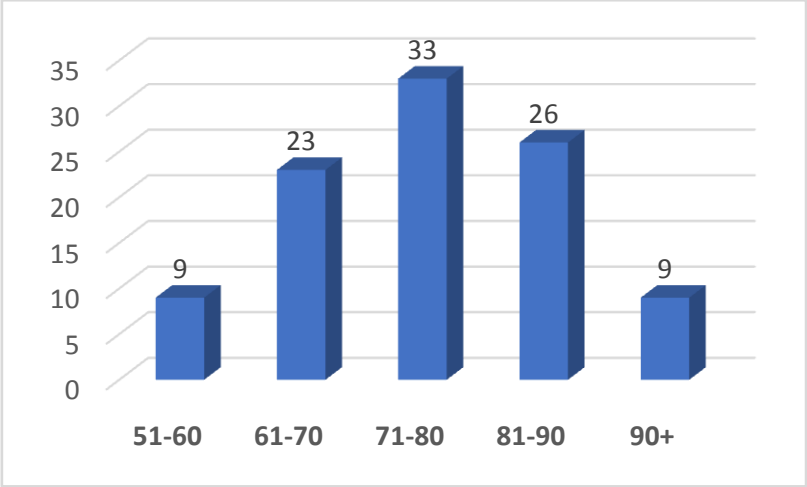

Fig 1.1: Above figure shows the age distribution chart.

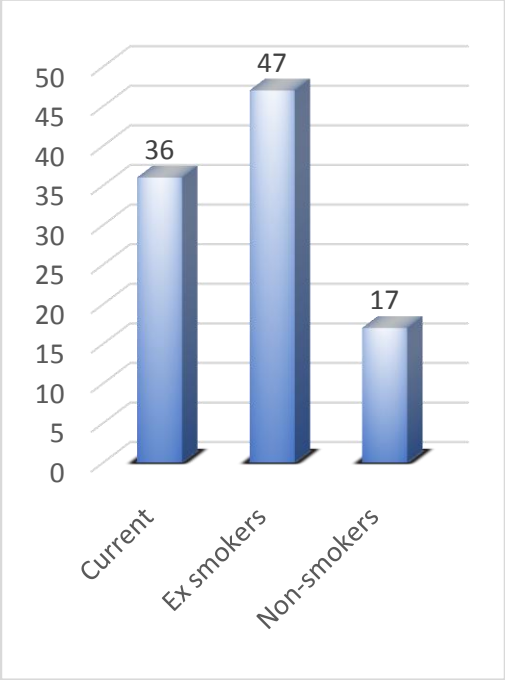

Fig 1.2Above figure indicates the number of patients with CAP who were smokers, ex-smokers and non-smokers.

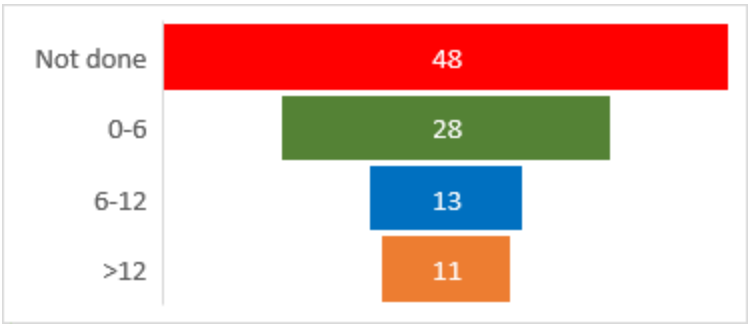

Fig 1.3Above figure shows the range of duration in weeks,CXR was performed after first diagnosis of community acquired pneumonia.

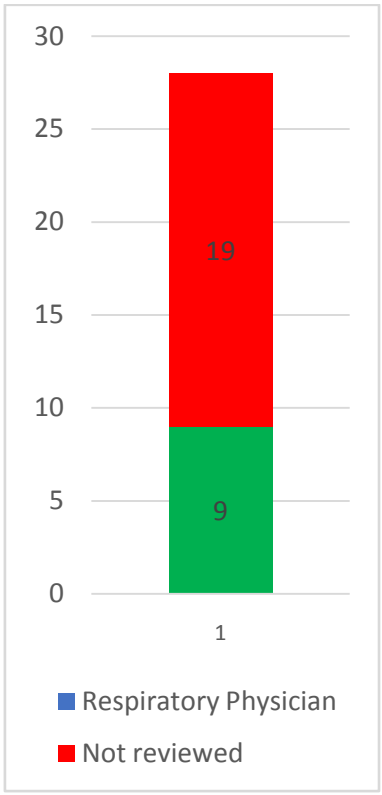

Fig 1.4Above figure denotes the number of patients whose follow up CXR performed in 6 weeks was reviewed by a clinician.

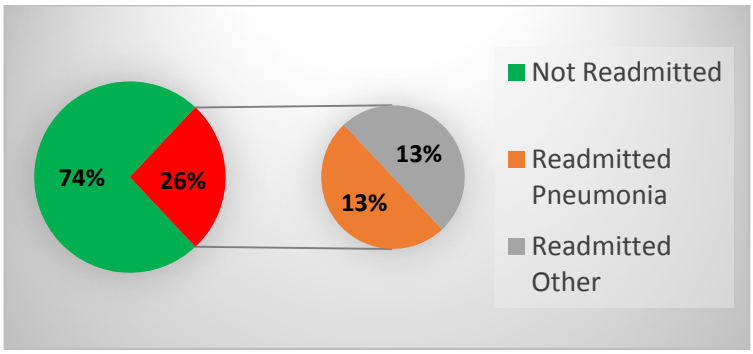

Fig 1.5 Above figure indicates the percentage of patients who were re-admitted with pneumonia after their first presentation in a duration of 4 months.

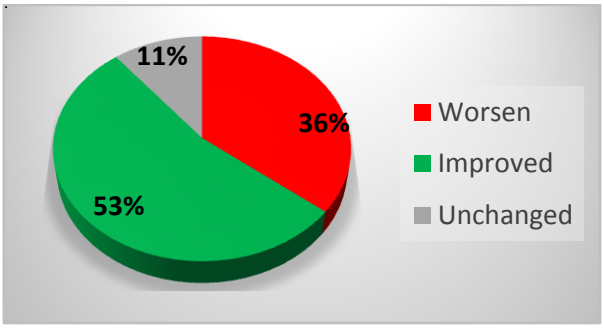

Fig 1.6Above figure denotes the percentage indicating worsening, improvement, or static change on follow up CXR in 6 weeks.

Only 28 patients fulfilled the national guidelines for undergoing follow up chest imaging. This means potential lung cancer diagnosis may be delayed.

- 13 patients who got readmitted with worsening pneumonia 9 patient did not have repeat CXR in 6 weeks post their first admission.
- One patient was investigated for possible lung carcinoma.

IV. Discussion

ROOT CAUSE ANALYSIS

We have found that there are multiple reasons for thefollow up CXR to not be performed. These are listed as follows :

1. *Patients* :

It was found that, often patients are readmitted to the hospital due to various other health problems and hence miss their appointment with the Imaging Department.
Some patients miss their appointments due to problems with transportation/other commitments
In other cases, patients feel that it is not important as they have already improved clinically.
Few patients forget that they have an appointment.

2. Clinicians:

The most common cause identified was that, junior doctors were unaware of these guidelines.
Amongst those who were aware, many did not realise the importance of this investigation and sometimes they failed to book a follow up CXR/mention it in the discharge letter, due to excessive work load.
Physicians / Radiographers sometimes do not report the follow upCXR .

3. *Equipment and Logistics* :

Sometimes the F/U CXR performed is of poor quality and is not useful in making proper comparision with the previous CXR.

RECOMMENDATIONS

- We found that the most effective way to make improvements would be by increasing awareness amongst the junior doctors who prepare the discharge letters.At the time of discharge, they need to book a follow up CXR, mention it in the discharge letter and inform the patient about it.
- It is also equally important to explain the patient about the importance of this follow up CXR.
- Those who do have a follow up CXR done, the X-ray performed needs to be reviewed by the Physician on the next follow up appointment at the Out-Patient Clinic or G.P. appointment.
- If the patient is readmitted in the hospital for any reason, a CXR must be performed and reviewed by a Clinician, considering his previous discharge diagnosis of CAP.

Bibliography

[1]. NICE Guidelines CG191. Pneumonia: Diagnosis and management of community and hospital acquired pneumonia in adults. December 2014 http://www.nice.org.uk/guidance/gc191
[2]. Cancer Research UK, Lung Cancer Key Stats, (2014), www.cruk.org/cancerstats.
[3]. Macdonald C, Jayathissa S, Leadbetter M. Is post-pneumonia chest X-ray for lung malignancy useful? Results of an audit of current practice. Intern Med J. 2015 Mar;45(3):329–34
[4]. Tang KL, Eurich DT, Minhas-Sandhu JK, Marrie TJ, Majumdar SR. Incidence, correlates, and chest radiographic yield of new lung cancer diagnosis in 3398 patients with pneumonia. Arch Intern Med. 2011 Jul 11;171(13):1193–8.

[5]. Are follow up chest x-rays being performed according to British Thoracic Society Guidelines on adults diagnosed radiologically with Community Acquired Pneumonia?. By Helen Burt* ST3 &LadliChandratreya, Consultant Radiologist,Lead Author, Department of Radiology, North Bristol NHS Trust
[6]. British Thoracic Society. Guidelines for the management of community acquired pneumonia in adults: update 2009. Thorax (2009) 64: Supp III
[7]. https://www.brit-thoracic.org.uk/document-library/clinical-information/pneumonia/adult-pneumonia/a-quick-reference-guide-bts-guidelines-for-the-management-of-community-acquired-pneumonia-in-adults/2009 update.

Dr. Cleofinafurtado." Follow Up Chest X-Ray Post- Pneumonia”."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 8, 2018, pp 56-60.