Missed Lung cancers in Chest X-ray

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Aim of the study

To find the number of missed lung cancers from the chest x rays of those patients who are diagnosed to have lung cancer in the year 2000 in Grampian region.

Standard indicator and target

- No standard or figures available from the Royal college or other radiological societies about acceptable missed lung cancer rate.
- Literature showed a range of missed lung cancer rates from 20% to 60%. Recent studies revealed a missed cancer rate of 20%. Recent studies revealed a missed cancer rate of 20%. Recent studies revealed a missed cancer rate of 20%. Recent studies revealed a missed cancer rate of 20%. Recent studies revealed a missed cancer rate of 20%. Recent studies revealed a missed cancer rate of 20%.
- Therefore it was locally agreed to have a target that 80% of chest x rays should diagnose lung cancers.

Methods and results

- 334 patients were diagnosed (28 excluded for missing details) to have lung cancer in the Grampian region in year 2000.
- 55/306 patients qualified for the study (5 were excluded for missing relevant chest x rays) by having one or more chest x rays performed in the preceding 12 months from the time of their diagnosis.
- The remainder of the 251/306 patients did not qualify for the study as they did not have any chest x ray in the preceding 12 months.
- The resulting 104 chest x rays (from 50 patients) were randomly mixed with 37 non-cancer chest x rays (but having some common benign pathologies) from the same year 2000.
- Three readers (2 chest radiologists and a senior registrar) who were blinded to the above read them independently. They marked their observations and graded the abnormal region on a scale of 1 to 5.
- The resulting observations were added for each chest x ray, discarding the grading scores for false positive findings.
- 37/50 patients chest x rays obtained high scores (highly suspicious).
- At this stage, the missed lung cancer rate for this study was 12.10%.
- However, the high scoring (suspicious) chest x rays of 37/50 patients were subsequently panel read by the whole team and the original reports concerning each chest x ray were compared.
- This allowed us to categorise the 37 patients chest x rays into 14 appropriate reports, 7 non-specific reports and 16 truly missed cancers.

Conclusion

MISSED LUNG CANCERS FROM OUR STUDY WAS 16 OUT OF 306 PATIENTS = 5.23%

Characteristics of the missed cancers

- 90% of the missed lesions were centrally located.
- Size range of the missed lesions was between 1 to 3.5 cm [literature shows a range of 1 to 7 cm].
- 67% of the missed lesions were superimposed on other structures [literature shows a range of 71 to 87%].
- 48% had significant co-existing pathologies [literature shows 63%].
- 67% of the missed cancers were detected within a period (delay in diagnosis) of 2 months [literature show a median delay of 472 days].

Action plan

- Personal feedback of non-specific reports to Radiologist concerned.
- Discrepancy meeting and presentation of missed lung cancers.
- Using the missed cancer chest x rays for educational objectives.

References