

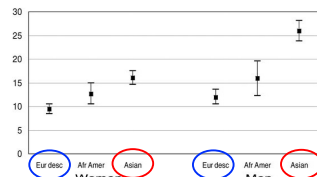
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INTRODUCTION

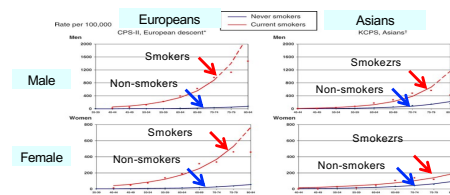
Lung cancer mortality in never smokers

Death rate (per 100,000)



- The mortalities in never smokers are larger in Asians (Red) than in Europeans (Blue).

Lung cancer mortality according to smoking status and race



- Mortality in smokers is much higher in Europeans than in Asians, whereas mortality in non-smokers is lower in Europeans than in Asians.
- Mortality difference according to smoking status in Asians is considerably smaller than that in Europeans.

Cohort study for evaluating the efficacy of chest CT screening for lung cancer (Nakayama Team, unpublished)

1 or more chest CT screening: 47,000 people

1 or more CXR screening (without CT): 84,000 people

Compare overall and lung cancer mortality

- As a result, even for non-/light smokers, lung cancer mortality in CT group was significantly lower than that in CXR group.
- Therefore, we should start to evaluate the efficacy of CT screening for non-/light smokers.

DISCUSSION AND CONCLUSION

Discussion

- The JECS study is the largest prospective study evaluating the efficacy of lung cancer screening in non-/light smokers.
- There have been no reports of CT findings suggestive of lung cancer in lung cancer screening for non-/light smokers, so this is the first report of these research results.
- One of the limitations of this study is that since the results of detailed examinations cannot be made public, it is not known whether each case was lung cancer, and therefore it is not possible to evaluate whether each diagnosis was correct.

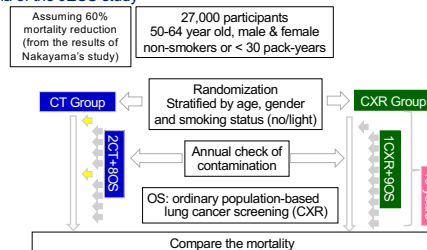
Conclusion

- In the CT screening group of the JECS study in 2010-2024, 93 % of CT findings that were determined screening positive, were nodule/mass and their average diameter was 9.7mm.
- 68 % of nodule/mass showed non-solid type with an average diameter of 9.5 mm.

METHODS

The Japanese Randomized Trial for Evaluating the Efficacy of Low-dose Thoracic CT Screening for Lung Cancer: JECS Study

Schema of the JECS study



Reporting category for screening positive in JECS study

- Nodules with a mean diameter of 5 mm (2012-2016) or 6 mm (2017-2023) or more and suspected to be lung cancer.
- Even if the mean diameter is above the detection standard, peri-fissural nodule and nodules that are multiple in a region should not be rated as screening positive.
- Findings other than nodules that suggest lung cancer may be rated as screening positive, but lymph nodes measuring less than 1 cm in the mediastinum/hilum without lung nodules should not be rated as screening positive on their own.

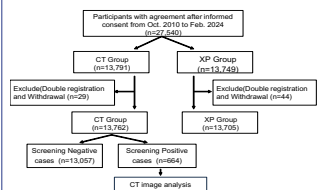
Purpose

- To clarify the CT findings of CT screening group with screening positive (suspected lung cancer) in a comparative study of CT lung cancer screening targeting non-/light smokers (JECS study) at the first CT examination.

Materials & Methods

Materials (from 2010 to 2022)

- No. of participants in JECS study 27,463 cases
- No. of CT screening group 13,761 cases
- No. of screening positive cases 664 cases

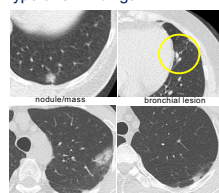


Background	CT group	Screen positive group
sex		
male	42.3%	39.6%
female	57.7%	60.4%
age group		
≤54	24.2%	15.8%
55-59	22.6%	19.9%
60-64	21.2%	26.8%
65≤	28.0%	37.5%
Smoking status		
non	56.5%	58.7%
past	34.4%	31.8%
present	9.2%	9.5%
Pack-years		
0< x < 10	16.6%	14.2%
10 ≤ x < 20	14.1%	14.0%
20 ≤ x < 30	12.7%	13.0%
x ≥ 30	0.3%	0.0%
Unknown	0.1%	0.2%

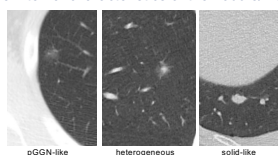
Methods

- Five chest radiologists extracted screening positive findings in CT images and evaluated the location of findings, type of findings (nodule/mass, infiltrative opacity, bronchial lesion or others), and size, internal and marginal characteristics if cases presenting nodule/mass.
- Each case was evaluated by two chest radiologists.
- The size was the average of both, and the type and characteristics were decided by consensus between both.

Type of CT findings

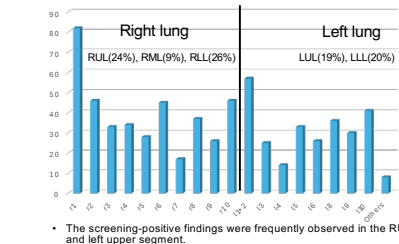


The internal characteristics of the nodule/mass



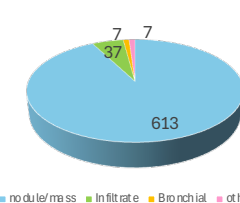
RESULTS

Result 1: Location of screening positive findings



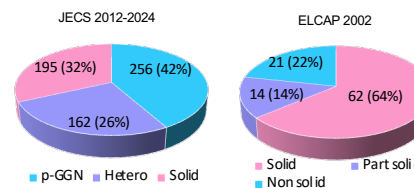
- The screening-positive findings were frequently observed in the RUL and left upper segment.

Result 2: Type of CT findings



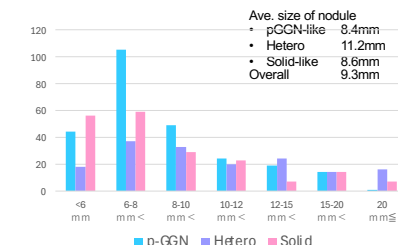
- The nodules/masses were the most common, accounting for 93% of all lesions.

Result 3: The internal characteristics of the nodule/mass in JECS study compared with ELCAP



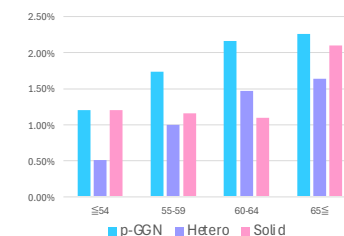
- 256 nodules (42%) were classified as pGGN-like in JECS study, while there were 21 cases (22%) of non-solid nodules in ELCAP.

Result 4: The size and internal characteristics of the nodule/mass



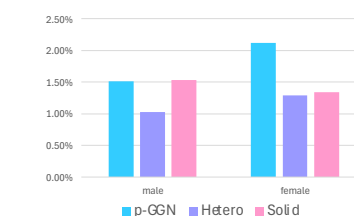
- The mean diameter of non-solid lesions was 9.7 mm.

Result 5: The age and internal characteristics of the nodule/mass



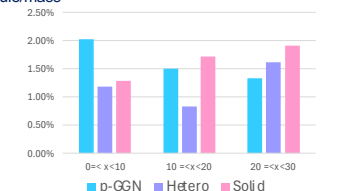
- The prevalence of nodule/mass increased with age.

Result 6: The gender and internal characteristics of the nodule/mass



- pGGN-like nodules were more common in female.

Result 7: The pack-year and internal characteristics of the nodule/mass



- The prevalence of solid-like nodule/mass increased with a higher smoking index.

REFERENCES & ACKNOWLEDGEMENTS

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No AI was used in this study.