Online Quiz

Test Your Knowledge: Ten Questions about Lung Cancer

This quiz is related to the Perspectives article in the March issue of *PLoS Medicine* (DOI: 10.1371/journal.pmed.0020075).

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Question 1. What proportion of lung cancers are small cell lung cancers?

- ☐ About 10%
- ☐ About 20%–25%
- ☐ About 40%–50%
- ☐ About 70%

Question 2. In terms of the number of cancer-related deaths worldwide, where does lung cancer rank?

- ☐ First
- ☐ Second, after colorectal cancer
- ☐ Third, after colorectal cancer and stomach cancer

Question 3. What proportion of cases of lung cancer are caused by smoking?

- ☐ About 50%–60%
- ☐ About 75%
- ☐ About 80%–90%
- ☐ About 95%–99%

Question 4. Based on the best-available evidence, which of the following oral supplements has been proven to prevent lung cancer when taken by healthy people?

- ☐ Alpha-tocopherol
- ☐ Beta-carotene
- ☐ Retinol
- ☐ None of the above

Question 5. What is the overall five-year survival rate for lung cancer?

- ☐ 5%–7%
- ☐ 10%–12%
- ☐ 16%–18%
- ☐ 24%–26%

Question 6. Which of the following best reflects the evidence on population-based screening for lung cancer?

- ☐ RTCs have shown that screening with spiral computed tomography (CT) reduces lung cancer mortality
- ☐ Screening with frequent chest X rays is associated with reduced lung cancer mortality compared with less frequent screening
- ☐ Screening with frequent chest X rays is associated with increased lung cancer mortality compared with less frequent screening

Question 7. Which of the following best reflects the evidence on the value of giving palliative chemotherapy to patients with stage 4 non-small cell lung cancer (the most advanced stage)?

- ☐ Palliative chemotherapy improves survival at one year and is associated with improved quality of life
- ☐ Although palliative chemotherapy improves survival at one year, its side effects mean that the treatment is associated with impaired quality of life
- ☐ Palliative chemotherapy is associated with improved quality of life, but there is no evidence that it prolongs survival

Citation: Yamey G (2005) Test your knowledge: Ten questions about lung cancer. *PLoS Med* 2(3): e93.

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DOI: 10.1371/journal.pmed.0020093

Question 8. In people with resectable non-small cell lung cancer, which of the following best reflects the evidence on the value of adjuvant chemotherapy?

- There is no evidence that giving adjuvant chemotherapy prolongs survival compared with surgery alone
- Several systematic reviews and several RCTs have shown conclusively that adjuvant chemotherapy prolongs survival compared with surgery alone
- Although the overall evidence is inconclusive, two recent RCTs suggest that adjuvant chemotherapy may confer a survival benefit in resectable stage 1B to stage 3 disease

Question 9. In people who are in complete remission from small cell lung cancer, which of the following best reflects the evidence on giving prophylactic cranial irradiation?

- It confers a large survival benefit
- It confers a small survival benefit
- It confers no survival benefit

Question 10. Which of the following best reflects the evidence on giving oral etoposide compared with giving combination chemotherapy to people with extensive-stage small cell lung cancer?

- There is no survival difference between etoposide and combination chemotherapy
- Etoposide is associated with increased survival compared with combination chemotherapy
- Etoposide is associated with reduced survival compared with combination chemotherapy

Answer 1. About 20%–25%

Small cell lung cancer constitutes about 20%–25% of all lung cancers. The rest are non-small cell lung cancers, of which adenocarcinoma is now the most prevalent form [1,2].

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Answer 2. First

Lung cancer is the leading cause of cancer death worldwide in both men and women [1]. There are 1.2 million new cases diagnosed each year [2].

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2. IARC (2004) GLOBOCAN 2002 [database]. Lyon (France): IARC press. Available: <http://www-depdb.iarc.fr/globocan/GLOBOframe.htm>. Accessed 11 February 2005.

Answer 3. About 80%–90%

Smoking accounts for about 80%–90% of all cases of lung cancer [1].

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Answer 4. None of the above

A Cochrane systematic review examined four randomized controlled trials (RCTs) that compared different supplements against each other, or supplements versus placebo, which involved a total of 109,394 participants. The review found no evidence to support recommending vitamins such as alpha-tocopherol, beta-carotene, or retinol, alone or in combination, to prevent lung cancer [1]. The review found a harmful effect (a statistically significant increased risk of lung cancer incidence and mortality) for beta-carotene with retinol at pharmacological doses in people with risk factors for lung cancer (smoking and/or occupational exposure to asbestos).

References

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Answer 5. 10%–12%

The overall five-year survival rate is 10%–12% [1].

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Answer 6. Screening with frequent chest X rays is associated with increased lung cancer mortality compared with less frequent screening

A Cochrane systematic review searched for all controlled trials of screening for lung cancer using sputum examinations, chest radiography, or chest CT [1]. Seven trials were included (six randomized controlled studies and one nonrandomized controlled trial) with a total of 245,610 participants. Frequent screening with chest X rays was associated with an 11% relative increase in mortality from lung cancer compared with less frequent screening (relative risk = 1.11; confidence interval, 1.00–1.23). The reviewers found no controlled studies of spiral CT. The National Lung Screening Trial (<http://www.nci.nih.gov/nlst>)—a very large randomized study of 50,000 participants—is underway in the United States to compare mortality between spiral CT and chest X rays.

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Answer 7. Palliative chemotherapy improves survival at one year and is associated with improved quality of life

Systematic reviews in people with stage 4 non-small cell lung cancer have found that adding chemotherapy regimens that contain cisplatin to best supportive care increases survival at one year compared with supportive care alone [1]. In one review, for example, median survival was 5.5 months with cisplatin-containing regimens plus supportive care versus four months with supportive care alone [2]. There is also some evidence from RCTs that adding chemotherapy to best supportive care may improve quality of life compared with best supportive care alone [1].

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2. Non-Small Cell Lung Cancer Collaborative Group (2002) Chemotherapy for non-small cell lung cancer. *Cochrane Database Syst Rev* 2002: CD002139.

Answer 8. Although the overall evidence is inconclusive, two recent RCTs suggest that adjuvant chemotherapy may confer a survival benefit in resectable stage 1B to stage 3 disease

While published systematic reviews and RCTs have failed to clearly show a survival benefit [1,2,3,4,5,6], two newer RCTs that have been presented as abstracts at meetings suggest that adjuvant chemotherapy (third-generation agents plus a platinum drug) may confer a survival benefit for resectable stage 1B-3 disease compared with surgery alone [7,8].

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Answer 9. It confers a small survival benefit

A Cochrane systematic review identified seven RCTs, involving 987 patients with small cell lung cancer in complete remission, comparing cranial irradiation with no cranial irradiation [1]. Cranial irradiation conferred a small survival benefit (relative risk of death at three years was 0.84 [95% confidence interval, 0.73 to 0.97], corresponding to a 5.4% increase in survival). The fact that the survival benefit is small reflects the impact of other events not influenced by prophylactic cranial irradiation, such as metastases outside the brain or thoracic relapse [2,3].

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Answer 10. Etoposide is associated with reduced survival compared with combination chemotherapy

Two RCTs in people with extensive-stage small cell lung cancer found that oral etoposide reduced survival

compared with combination chemotherapy at one year [1,2].

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