JOURNAL CLUB

Volume doubling time for lung cancer screening

This Italian, retrospective cohort study used data collected during the Continuous Observation of Smoking Subjects (COSMOS) study. The aim was to measure volume doubling time (VDT) of incident lung cancers detected by low-density CT screening over 5 consecutive years as a means of identifying slow-growing cancers that might be overdiagnosed, and to evaluate clinical outcomes comparing these with faster growing lesions. Based on previous studies' results, slow-growing or indolent tumours were deemed to have a VDT of >400 days.

COSMOS recruited 5203 high-risk volunteers with an adherence rate of 79% for all five scans. During the study, 175 cases (3.2% of participants) of primary lung cancer were identified; 55 prevalent (present on first scan) and 120 incident cases (found thereafter). Of the incident cases, 25.8% were found to be slow growing or indolent (VDT >400 days). There were 29 cases that underwent invasive procedures for benign disease, 13 of which had VDTs of <400 days.

The results are difficult to interpret, but appear to show that screening assists with early diagnosis or treatment and better outcomes. However, there was a marked overlap between benign and malignant disease in terms of VDT, leading to false positives and false negatives indicating that VDT alone is not a valid screening tool. It may be of value if used in combination with other predictors such as risk stratification and PET-CT. Furthermore, improvements in molecular marker recognition and less invasive procedures could reduce the impact of the diagnostic procedures.

► Veronesi G, Maisonneuve P, *et al.* Estimating overdiagnosis in low-dose computed tomography screening for lung cancer a cohort study. *Ann Intern Med* 2012;157:776–84.

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