LOW-DOSE COMPUTED TOMOGRAPHY SCREENING FOR LUNG CANCER

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Introducción: lung cancer is the cancer with higher mortality in Spain (20,6%; 27,4% men and 9,4% women). Smoking is the principal risk factor, being the responsible for the 85-90% of the cases and 70% of the worldwide deaths. The larger the number of pack-years and the time smoking, the higher is the risk of developing lung cancer, so heavy smokers are susceptible of early diagnosis. The survival of patients with advanced cancer diagnosed, i.e. disseminated, is significantly diminished. Currently definite surgery in early stages is the most effective treatment, and the patients survival descends as the stage increases (from 50% in stage IA to 43%, 36%, 25%, 19%, 7% and 2% in stages IB, IIA, IIB, IIIA, IIIB and IV, respectively). A screening programme that detects early phases of the lung cancer could prevent the advance of the disease improving the patients survival, since an early diagnosis facilitates the early treatment.

Objectives: to evaluate safety and effectiveness of the low-dose computed tomography (LDTC) for lung cancer screening in heavy smokers (individuals with smoking history of at least 20 pack years or former smokers with less than 10 years of abstinence). To estimate the performance of the screening (sensitivity, specificity, predictive positive value, false positives).

Methods: a systematic review of the scientific literature was made in the following databases: Centre for Reviews and Dissemination (CRD), Cochrane Library, Medline (PubMed), EMBASE (Ovid), ISI Web of Science (Web of Knowledge, WoK), Scopus, ClinicalTrial.gov and ICTRP WHO. The search was conducted in June 2015 with temporary limit from year 2000, and with periodical updates to retrieve recent articles. Only randomized clinical trials (RCTs) were selected. Two independent reviewers verified independently that the papers were compliant with established inclusion and exclusion criteria. The data were summarized in evidence tables, and the methodological quality of the studies was assessed using the system developed by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group. A meta-analysis, if appropriate, was performed after obtaining pooled measures with the Review Manager program version 5.2. When necessary, means and standard deviations (SDs) weighted by sample size, were calculated with the SPSS statistics program version 19.

Results: attending to inclusion criteria, 8 RCTs were selected. The comparator in two of them was screening with thorax radiography (TxR), and no screening in the other six studies. When thorax radiography was the control group, the lung cancer screening with LDCT reduced lung cancer mortality by 20% and overall mortality by 6%. The proportion of false positives was elevated. The overall and specific mortality was similar between screening

with LDCT and no screening, with no statistical differences, although these RCT have low statistic power. Even though the false positives were less than those detected in the studies comparing LDCT with TxR, the number is still high for a screening programme. The only study with enough statistical power to detect mortality differences between LDCT and no screening is not finished yet and its results are expected in 2016.

Conclusions: The results of a high quality study favours LDCT over TxR, however, the screening with TxR is not a recommended nor a standard screening for lung cancer. The low statistical power and heterogeneity of the trials that compare LDCT to usual care difficult the assessment of differences in mortality rates. The high false positive rates, similar advanced cancer detected between screening rounds, overdiagnosis or costs are some of the concerns about LDCT screening. It would be necessary to assess the data from the only study with enough statistical power and sample size to detect differences in mortality with the usual care, whose results are expected in 2016