PET—CT in lung cancer: data discrepancies

The Danish study of positron emission tomography (PET)—CT versus conventional staging (CS) in non-small cell lung cancer has been reported twice now1,2 and corrected once.3 However, there are discrepancies in numbers between the manuscripts,1,2,3 which is surprising given the small number of patients (n=189) and centres (n=5). Was endoscopic ultrasonography done in 42 or 47 of 98 PET—CT patients, and in 30 or 35 of 91 CS patients? Was fine-needle aspiration done in 36 or 40 PET—CT patients, and in 24 or 29 CS patients?2,3 Was fine-needle aspiration positive in 16 or 19 PET—CT patients? Was mediastinoscopy positive in 10 or 12 CS patients? Can the authors explain the discrepancies and show how any reconciliation of the numbers affects the findings of each manuscript?

While the total downstaging in both groups was comparable (62% vs 71%, p=0.19), the implied downstaging in the PET—CT arm as a result of modalities other than PET—CT was significantly lower (41% vs 71%, p=0.001). One would have expected the proportion of patients experiencing downstaging based on non-PET—CT investigations to be similar in both groups in a randomised study. It is possible that the apparent superiority of PET—CT is simply the result of inadequacy of non-PET—CT investigations in the CS arm.

Our concern is that the conclusions in both manuscripts have hinged upon small differences in the PET—CT and CS groups, which could simply be due to analytical errors or technical deficiencies of the sort described above. We respectfully suggest that the accuracy of the primary data from this important study be verified independently by the journals.

Jose M Paredes,1 Jayesh Mehta2
1University of Illinois, Chicago, Illinois, USA;
2Northwestern University, Feinberg School of Medicine, Chicago, Illinois, USA

Correspondence to Jayesh Mehta, Northwestern University, Feinberg School of Medicine, 676 N Saint Clair St, Suite 850, Chicago, Illinois 60611, USA;
j-mehta@northwestern.edu

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Authors’ response

We thank Drs Paredes and Mehta for their comments on our work on positron emission tomography (PET)—CT in the staging of lung cancer.1,2 As correctly pointed out by Drs Paredes and Mehta, there is a discrepancy in the number of patients undergoing endoscopic ultrasonography (EUS) in the two reports from our institution.2,3 Although both reports concern the staging of patients with non-small cell lung cancer, they address different aspects of the disease. The paper published in the New England Journal of Medicine2 was an intention-to-treat analysis with PET—CT as the only intervention and with the number of futile thoracotomies as the final end point. We have meticulously tried to assemble and report complete and accurate data on all included patients in both papers. Unfortunately, this was done twice, giving rise to a minor discrepancy in the number of patients undergoing PET—CT and EUS reported in the two studies. When performing the analysis previously published in Thorax,3 we focused on information regarding the specific N-stage of each patient. In order to confirm the N-status of each patient, we compared the initial database with (A) the database from a study on EUS performed in parallel with the study on PET—CT (as mentioned in both our previous reports) and (B) the nationwide pathology register. By doing this, we found an additional five patients in each group who had undergone an EUS examination. In four and five patients, respectively, of the additional five patients found in each of the two groups, a fine-needle aspiration (FNA) was done during the same procedure. There was still no significant difference in the frequency of either EUS or EUS—FNA between the two groups and it had no impact on the reported results. Our findings confirm that PET—CT is an important part of preoperative staging of patients with non-small cell lung cancer, but it also underscores, as stated by Drs Paredes and Mehta and in the Discussion section of our paper, the need for a complimentary well-considered use of invasive mediastinal staging. Finally, we would be happy to welcome both Drs Paredes and Mehta to our department for a discussion of our data.

Barbara M Fischer, Jann Mortensen, Liselotte Hojgaard

Department of Clinical Physiology, Nuclear medicine & PET, Righospitalet, Copenhagen, Denmark

Correspondence to Barbara M Fischer, Department of Clinical Physiology, Nuclear medicine & PET, Righospital, CF 4011, Blegdamsvej 9, DK 2100 Copenhagen, Denmark; malene.fischer@rh.regionh.dk

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