FIGURE 1. All cause mortality (A, risk ratio; B, hazard ratio) among patients with early-stage non-small cell lung cancer randomized to mediastinal lymph node dissection (MLND) versus sampling (MLNS) during pulmonary resection. IV, Inverse variance; CI, confidence interval; ACOSOG, American College of Surgery Oncology Group; SE, standard error.

Studies considered for inclusion met the following criteria: the design was a prospective randomized controlled clinical trial; the study population was patients with early-stage (stage I–IIIA) NSCLC; patients were randomly assigned to MLND versus MLNS during pulmonary resection; and main outcomes included follow-up all-cause mortality. For each study, data regarding all-cause mortality in both the MLND and MLNS groups were used to generate risk ratios (RRs) and 95% confidence intervals (CIs). Hazard ratios (HRs) for all-cause death and 95% CIs were also abstracted from each individual study. Study-specific estimates were combined using inverse variance-weighted averages of logarithmic RRs or HRs in both fixed- and random-effects models. Where no significant statistical heterogeneity was identified, the fixed-effect estimate was used preferentially as the summary measure.

Our comprehensive search (current through March 2011) identified 4 trials: median 6.5-year results of the ACOSOG Z0030 trial,¹ 10-year results of a trial by Wu and associates,² median 5.4-year results of a trial by Sugi and colleagues,³ and median 4.0-year results of a trial by Izbicki and collaborators.⁴ Pooled analysis of the 4 trials (representing

1778 patients with early-stage NSCLC) demonstrated a statistically nonsignificant reduction (but a strong trend toward a significant reduction) in all-cause mortality with MLND relative to MLNS in fixed-effects models (RR, 0.91; 95% CI, 0.82–1.00; $P = .05$; P for heterogeneity = .59 [Figure 1, A]; HR, 0.86; 95% CI, 0.73–1.01; $P = .06$; P for heterogeneity = .29 [Figure 1, B]). Exclusion of any single trial of the previous 3 trials^{2–4} from the analysis did not substantively alter the overall result of our analysis. Eliminating the ACOSOG Z0030 trial,¹ however, demonstrated a statistically significant reduction in all-cause mortality with MLND relative to MLNS (RR, 0.87; 95% CI, 0.76–0.99; $P = .04$; HR, 0.69; 95% CI, 0.51–0.93; $P = .01$).

The results of the present analysis suggest that MLND may not reduce all-cause mortality over MLNS during pulmonary resection in patients with early-stage NSCLC. The results are not robust, however, because exclusion of the ACOSOG Z0030 trial¹ substantially changed the pooled estimate. *Which way we ought to walk from here depends a good deal on where we want to get to.*

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Reply to the Editor:

We read with interest the letter of Takagi, Matsui, and Umemoto, who provided the results of their meta-analyses of randomized controlled trials of mediastinal lymph node

dissection (MLND) versus mediastinal lymph node sampling (MLNS) during pulmonary resection. The 4 trials that were included in the meta-analyses included the American College of Surgery Oncology Group (ACOSOG) Z0030 trial¹ as well as trials reported by Wu,² Sugi,³ Izbicki,⁴ and their co-workers. All of these trials addressed the question of whether MLND improved survival after pulmonary resection for lung cancer compared with MLNS.

In the Izbicki trial,⁴ patients with resectable non-small cell lung cancer (NSCLC) stages I, II, or IIIA were staged preoperatively with computed tomography but had mediastinoscopy only if they had enlarged contralateral (N3) nodes. Patients were randomized at thoracotomy to MLNS or MLND. This methodology differs from that used in the ACOSOG trial, wherein only patients who had negative systematic sampling of stations 2R, 4R, 7, and 10R for right-sided tumors and 5, 6, 7, and 10L for left-sided tumors were eligible for randomization. In this way, patients with N2 positive nodes that were discovered with sampling were excluded from the trial.

In the trial reported by Sugi and associates,³ only patients with small T1 (<2 cm; stage Ia) NSCLC were included, but a similar protocol to that used in the Izbicki trial was used (ie, invasive mediastinal node assessment was not done before randomization). The ACOSOG trial¹ included patients with clinical stages I and II, although the majority of patients had stage I disease with approximately equal proportions of stage Ia and Ib.

In the trial reported by Wu and co-workers,² only clinical staging was performed before randomization; no invasive mediastinal staging was performed before randomization, with the result that 40% of patients in the MLND group had stage IIIa disease versus 28% in the MLNS group.

Takagi and colleagues report a strong trend to improved survival in their meta-analysis of the 4 trials with

a relative risk (RR) of 0.91 (95% confidence interval [CI], 0.82-1.0), but if the ACOSOG trial is *excluded*, the result changes with a RR of 0.87 [95% CI, 0.76-0.99; $P = .04$]. The non-ACOSOG trials are all similar in that *invasive staging of the mediastinum was not done before randomization*.

How, then, should we interpret these results? It appears that if invasive mediastinal lymph node assessment is not done before resection (ie, no mediastinoscopy and no mediastinal lymph nodes sampling), then an MLND should be performed as it potentially offers a survival advantage largely because of the detection and removal of positive mediastinal nodes. However, if the surgeon has *systematically staged* the mediastinum either by mediastinoscopy or by sampling at the time of pulmonary resection for T1 or T2 NSCLC by thoracotomy or video-assisted thoracic surgery and there is no evidence of N2 disease, then MLND by formal en bloc resection adds nothing further and offers no survival advantage.

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SYNCHRONIZED EPIAORTIC TWO-DIMENSIONAL AND COLOR DOPPLER ECHOCARDIOGRAPHIC GUIDANCE ENABLE ROUTINE ASCENDING AORTIC CANNULATION IN TYPE A ACUTE AORTIC DISSECTION To the Editor:

We read with great interest the recent article by Inoue and associates¹ describing routine ascending aortic cannulation in type A acute dissection with the guidance of epiaortic scanning.

Over the past year, we have started adopting a similar strategy as a routine in type A aortic dissection. The procedure has been used in 7 consecutive patients so far with no complications related to cannulation. As we read the authors' impressive work,¹ we pondered over queries regarding 2 main differences in our technique.

First, transesophageal echocardiography (TEE) is a valuable adjunct to the procedure. In our practice, intraoperative TEE is routinely used in type A dissection, so we relied on a combination of TEE and epiaortic scanning to assist in direct cannulation of the aorta. TEE, apart from its numerous diagnostic capacities in such cases, may be a valuable adjunct to this specific procedure. It allows confirmation of the position of the guide-wire and the cannula in the distal arch or descending aorta, as well as the flow in the true lumen when the arterial line is tested immediately after cannulation. The use of TEE in such a setting was previously described by Göbölös and colleagues,² although they described it without the use of epiaortic scanning and as a bail-out, rather than a routine procedure.

Second, we noticed that the authors¹ repeatedly highlighted the value of decompression of the aorta by instituting femoro-atrial bypass before ascending