evaluation of an acute episode of chest pain. Patient demographics were not reported. Only 62 (19%) met the criteria for AMI.

Study design and validity This was a prospective cross-sectional study. Patients with acute chest pain were admitted to the hospital to receive care appropriate for their clinical situation. Serial total CK, CK-MB, and cTn-I measurements were determined on admission and every 6 to 8 hours for at least 24 hours. The upper limit of normal for CK-MB was 5.0 grams per liter and 0.8 grams per liter for cTn-I. AMI was defined by modified World Health Organization criteria, which required at least 2 of the following: typical chest pain for more than 30 minutes; evidence of ischemic changes on the electrocardiogram; and an elevation in the CK-MB level to > 5.0 grams per liter or a change of ≥ 25% between 2 CK-MB measurements.

The study had several important limitations. Most important is the fact that CK-MB is being tested while also being part of the diagnostic criteria. This generally has the effect of inflating the measured accuracy of CK-MB, although it should not affect the evaluation of cTn-I. Also, only approximately two thirds of the 327 patients enrolled had sufficient data to analyze (unpublished data). Finally, the population was not characterized with respect to demographic or cardiac risk factors.

Outcomes measured The primary outcomes were the sensitivity and specificity of cTn-I and CK-MB during the first 24 hours of hospitalization.

Results The sensitivity, specificity, positive likelihood ratio and negative likelihood ratio are shown in the Table. The specificity is a correction from that quoted in the article, obtained through personal communication with the investigators.

The sensitivity of cTn-I was significantly higher than that of CK-MB, indicating that cTn-I is more likely to detect an AMI that has occurred. The lower negative likelihood ratio for cTn-I suggests that this test is better at ruling-out AMI when negative. The difference in specificity between the 2 tests was not statistically significant. Total CK levels, as expected, were less sensitive and less specific than either CK-MB or cTn-I levels. Although cTn-I appears more sensitive than CK-MB, the test did not reach the peak sensitivity until at least 12 hours after onset of symptoms. Within 6 hours of the onset of chest pain, all tests had a sensitivity of less than 40%.

Recommendations for clinical practice **Of the 3 markers examined, cTn-I was the most accurate test to rule out myocardial infarction in this group of unselected patients. Because of the probable bias from using CK-MB as part of the diagnostic criteria, the apparently better specificity of CK-MB is likely artifactual. The cTn-I marker offers no reduction in time necessary to rule out AMI, but its intermediate half-life may allow it to replace both CK-MB and lactate dehydrogenase in testing for AMI. The cTn-I test may offer other prognostic information as well, since it remained increased longer after a Q-wave than a non-Q–wave AMI. If, as the authors state, the cost and ease of use of CK-MB and cTn-I are comparable, then cTn-I appears to be the best biochemical marker available to determine the presence of AMI. However, a larger study with better attention to detail is needed before widespread acceptance of cTn-I. It would also be of value to closely examine patients with discordant results between the cTn-I and CK-MB tests.**

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TABLE. Sensitivity, Specificity, Positive Likelihood Ratio, and Negative Likelihood Ratio of Cardiac Troponin I (cTn-1)

Marker	Sensitivity, %	Specificity, %	LR+	LR-
CK-MB	88.2	93.2	13.0	0.1
cTn-I	100	90.6	10.6	0.005

LR+ denotes positive likelihood ratio; LR-, negative likelihood ratio.

Bed Rest for Sciatica?

Vroomen PC, de Krom MC, Wilmink JT, Kester AD, Knottnerus JA. Lack of effectiveness of bed rest for sciatica. N Engl J Med 1999; 340:418-23.

Clinical question **Is there any benefit to 2 weeks of bed rest for sciatic back pain?**

Background There is accumulating evidence that bed rest is not helpful for the treatment of uncomplicated low back pain. However, most of these studies have excluded patients with sciatica. This was the first study to test whether bed rest has benefit for patients with lumbosacral radiculopathy.

Population studied Eligible patients were those referred by general practitioners to a neurology department in the Netherlands. Patients were included in the study if they had back pain radiating into one leg (below the gluteal fold) and enough pain to justify 2 weeks of bed rest, which is a standard therapy for sciatica in the Netherlands. Patients were excluded if they had prior back surgery, any pending workers' compensation

claims, severe coexisting illness, plans to leave the area, or an immediate need for surgery (indicated by progressive neurologic deficits or intractable pain despite adequate treatment with morphine). The general practitioners referred 338 patients to the study. Of these, 227 were eligible and 183 agreed to enroll in the study.

Study design and validity Patients were randomized to either bed rest or watchful waiting (the control group). Patients in the bed rest group were instructed to stay in bed (with bathroom privileges) for 2 weeks. The control group was instructed to be as active as tolerated. The investigators were blinded to the treatment assignment and evaluated patients at entry, 2 weeks, and 12 weeks. Patients underwent magnetic resonance imaging (MRI) on entry to the study. After the 2-week period, patients were instructed to avoid bed rest and were treated with usual care. Follow-up was good and blinding was reasonably successful.

Outcomes measured The primary results were patient and investigator perceptions of improvement. The investigators also reported MRI results, work absenteeism, specialist evaluation, surgical procedures, pain, and functional status.

Results At 2 and 12 weeks, both groups had similar rates of improvement, whether assessed by the subject or the investigator. Based on log data, the bed rest group spent 21 hours a day in bed, while the control group was in bed 10 hours a day. There were no significant differences in the pain, satisfaction, or functional status scores between the 2 groups. Slightly less than 20% of patients in both groups underwent diskectomy. Rates of absenteeism were also similar. Subgroup analysis revealed that patients with a history of sciatica reported more benefit from bed rest than did patients without prior diagnoses. This observation, however, was not confirmed with more objective measures of symptoms. This may have been due to an expectancy bias; patients with a history of sciatica probably had been treated with bed rest in the past and expected it to be effective. The presence of nerve impingement on MRI did not predict benefit from bed rest.

Recommendations for clinical practice **This randomized trial of people with sciatica, comparing strict bed rest with activity as tolerated, found no difference between the 2 groups. No sample size calculations were reported. On the basis of the reported confidence intervals, it is likely that this study is too small to rule out a minor benefit (or harm) from strict bed rest. For example, at 2 weeks, patients in the bed rest group had an adjusted odds ratio of 1.2 for reporting improvement in their condition. The 95% confidence interval ranged from 0.6 to 2.3, encompassing ratios that might be clinically significant. We would need larger studies to rule out any benefit or harm from strict bed rest. However, this study shows that it is unlikely that strict bed rest makes a substantial difference in outcomes among patients with sciatic symptoms and low back pain. It also found that MRI did not discriminate between those patients who would have spontaneous resolution of their symptoms (the majority) and those who would not. In the absence of indications for surgery, the most prudent approach for patients with sciatica appears to be controlling pain, avoiding activities that exacerbate pain, and letting nature take its course.**

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