

## Availability bias in the management of myocardial infarction

Sir,

Variable and suboptimal treatment of myocardial infarction are both common. Whether cognitive biases<sup>1</sup> such as the perceived availability of a treatment might affect the quality of care, is not known.

We prospectively evaluated the quality of management for myocardial infarction at Hadassah Medical Center (a major teaching institution in Jerusalem, Israel), which operates at two sites: the Ein-Kerem campus, which has the angiographic facilities, and the Mt Scopus hospital, which has the cardiac rehabilitation unit. Both are under the same division of Cardiology. In addition to various quality indicators, we measured (in both sites) the rate of reperfusion treatments and their time delays, and the proportion of patients referred to cardiac rehabilitation after discharge. Patients were included if they had suspected diagnosis of ST-elevation myocardial infarction (defined as clinical symptoms of angina-like pain and ST elevation), a new left bundle branch block on electrocardiography, or cardiogenic shock attributed to coronary ischaemia. The study was approved by the Institutional Review Board.

From February to August 2003, 145 consecutive patients with ST elevation myocardial infarction were enrolled (81 in Ein-Kerem, 64 in Mt Scopus). At each site, about half of patients received any reperfusion modality (either percutaneous coronary intervention (PCI) or thrombolysis), and only about a quarter of them went to cardiac rehabilitation, suggesting under-use of proven therapies.<sup>2</sup> Table 1

**Table 1** Rates of referral to treatment modalities at the two hospitals

	Ein-Kerem site	Mt Scopus site	<i>p</i>
Rate of primary PCI	82%	44%	<0.001
Rate of thrombolysis	18%	56%	
Mean $\pm$ SD delay to PCI (h)	2 $\pm$ 2.6	2.6 $\pm$ 0.9	<0.001
Rate of referral to rehabilitation	21%	35%	0.06
Rate aware of rehabilitation option	34%	46%	0.2

PCI, percutaneous coronary intervention. Percentages are of those given any reperfusion modality (PCI or thrombolysis) in the specified site.

presents the rates of referral to treatment modalities at the two hospitals: primary PCI was used in the majority of cases at the site with the angiography suite (Ein-Kerem). By contrast, at the other site (Mt Scopus), half of the patients received thrombolysis, even though the time delay for transfer to PCI was short: for patients transferred, an ambulance drive from Mt Scopus to Ein-Kerem lasted only 15  $\pm$  1 min (mean  $\pm$  SD). At both sites, time delays to PCI (door to balloon) were higher than the 90 min recommended,<sup>3</sup> and delays were shorter in Ein-Kerem by only half an hour. On the other hand, patients discharged from Mt Scopus (the site with cardiac rehabilitation) were more likely to be referred to rehabilitation. Confounding variables (such as patient age, ethnicity and cardiac disease severity) did not explain the differential referral between the two hospitals. At each site, over 80% of patients received PCI during the course of their hospitalization.

Although patient transfer to a referral center for primary PCI is an accepted option,<sup>3</sup> physicians at Mt Scopus appeared reluctant to use it, despite short transport delays. Although cardiac rehabilitation has been repeatedly shown to be effective,<sup>2</sup> this modality was largely under-used at both hospitals, and perhaps more so at the Ein-Kerem site, remote from the rehabilitation facility. Differential referral to therapies may relate to a cognitive bias<sup>1</sup> regarding their *perceived* availability by physicians. Furthermore, costly modalities such as primary PCI may be especially prioritized because of their inherent financial incentives, even when actual benefit is being questioned,<sup>4</sup> in comparison to under-used, low-cost, low-tech options such as cardiac rehabilitation, as reported in the US.<sup>5</sup> Interventions aimed at improving the quality of treatment need to understand and address the cognitive biases that may influence a physician's choice of therapy.

M.J. Cohen  
School of Public Health  
Faculty of Medicine  
Hebrew University of Jerusalem

A. Pollak  
Cardiac Intensive Care Unit  
Ein-Kerem Hospital

A.T. Weiss  
Cardiac Intensive Care Unit  
Mt Scopus Hospital

M. Brezis  
Center for Clinical Quality & Safety  
Hadassah Medical Organization

Hebrew University  
Jerusalem  
Israel  
email: brezis@vms.huji.ac.il

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