Transfer for Primary Angioplasty: Time is Important

To the Editor:

Dalby et al.1 have produced a meta-analysis on the transfer of patients for primary angioplasty versus non-transfer thrombolysis in acute myocardial infarction. Their conclusion from a collaboration of 6 papers is that primary angioplasty is the optimal method of treatment, rather than local thrombolytic therapy, despite delays in transfer times to tertiary referral centers with angioplasty facilities and expertise. Their conclusions are scientifically sound from the data that they have extracted; however, they state, “The findings are in keeping with the observation that time to reperfusion is much less critical with primary [percutaneous intracoronary intervention; PCI] than thrombolysis.” (p 1812)

Five of the studies they have used have a mean time to PCI from randomization of >80 minutes. Despite favorable results compared with thrombolysis, there is good evidence that door-to-balloon time is related to in-hospital mortality.2,3

One recent study claims that the mortality benefit associated with PCI may be lost if door-to-balloon time is delayed by >1 hour.4 Another suggests that if door-to-balloon time is expected to exceed 60 minutes, there should be a strong consideration for thrombolysis before angioplasty.5

The fear is that despite long door-to-balloon times producing favorable results compared with thrombolysis, this may produce a culture of complacency whereby fast transfer for PCI may become an unimportant issue. This is clearly unsatisfactory and should require addressing. Reducing door-to-balloon time is likely to provide primary angioplasty results that are even better than those already quoted.

Perhaps reduction in door-to-balloon time can only be realistically achieved if carried out without hospital transfer. This would mean an increase in requirement for angioplasty facilities and trained interventionalists nationally.

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Response

We are grateful for the comments from Dr Gogbashian and would like to clarify some points. Regarding time to reperfusion, thrombolysis is much more time sensitive than primary percutaneous coronary intervention (PCI). However, the shorter the time to reperfusion, the better, whether it is pharmacological or mechanical. Both modes of reperfusion are particularly effective in the first “golden” hour of symptom onset, and in this situation losing 1 hour for transfer to a distant PCI center is not the same as losing 1 hour for transfer when the patient presents 4 hours after symptom onset. Unfortunately, most patients present later rather than sooner, and transfer rapidly becomes a better strategy for the bulk of the acute myocardial infarction population.

In the trials of primary PCI versus thrombolysis, there are 3 time frames that need to be differentiated: symptom to needle/balloon, randomization to needle/balloon, and door to needle/balloon. In the context of transfer trials, the latter is vague and does not clarify the door to which it refers: the door of the primary care center, door of the tertiary care (door of the emergency room or of the catheterization laboratory?), or door of the mobile care unit (for example, in the CAPTIM [comparison of primary angioplasty and prehospital thrombolysis in the acute phase of myocardial infarction] study)? This correspondence appears to discuss a number of these time frames. Our meta-analysis, however, addresses a specific question that relates to randomization to balloon/thrombolysis time including, in the case of PCI, a transfer period, and it showed a benefit for the transfer group.

Finally, we can reassure Dr Gogbashian that we also strongly support fast transfer times to PCI, although we do not necessarily agree with the idea of having more local and low-volume PCI centers in every country. The optimum strategy is likely to be for all geographic regions to develop networks of care centered on an adequate number of high-volume “heart attack” centers undertaking regular primary PCI with well-developed ambulance transfer systems to transport patients from the hospital at which they present or, better still, directly from home. These well-equipped ambulances should have the resources to record and interpret ECGs; defibrillate, resuscitate, or ventilate patients; and reduce pain. They should also start the optimal pharmacological treatment before primary PCI, bypass the emergency rooms and coronary care units, and bring the patient directly to the catheterization laboratory where everything and everyone are ready for immediate angioplasty.

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Circulation. 2004;109:e175
doi: 10.1161/01.CIR.0000121688.42740.D6
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/109/12/e175

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