Letters to the Editor

Impact of Delays to Cardiac Surgery

Although Lotfi et al. (1) have contributed extremely useful data concerning the risks of percutaneous coronary intervention (PCI), I am afraid their final conclusion and particularly the implications of Dehmer and Gantt’s (2) editorial comment are potentially misguided and misleading. What the data demonstrate is that in this excellent facility there is a 0.0017 probability (11 of 6,582) of having a condition develop during PCI, which has a “high likelihood of harm with additional delay to surgery.” Rapid surgical intervention was defined as being under 2 h from the event, and was successful in all the patients in this cohort.

Although the data support the conclusions about the incidence of complications, it does not support the conclusion, particularly of the editorial comment, that PCI should not be performed at hospitals without on-site surgical backup. Surgical backup needs to be available in a timely fashion, with coordination between cardiologists and cardiac surgeons regardless of where the intervention is performed. The fact that a hospital has a cardiac surgery program does not provide sufficient safety if there is not an operating room (OR) or surgeon available for emergencies (as is the case in many institutions). Likewise, the fact that a hospital does not have an on-site surgery program does not prevent it from having an integrated, efficient, and coordinated transfer system capable of getting a critical patient to an OR within 2 h. The point is not that on-site surgery is necessary. It is that timely surgery results in good outcomes.

Restricting elective angioplasty to select institutions because of a very small risk ignores the substantial benefit offered by community-based interventions. The availability of skilled interventional cardiologists in community hospitals confers important benefits over and above those measured in acute outcome studies such as this one. This includes managing delayed complications such as acute or subacute stent occlusion postdischarge, continuity of long-term patient care, physician and patient education, acute infarct and acute coronary syndrome intervention, and, very importantly, increasing the awareness of need for the coordination of care with tertiary cardiac surgery programs. All of these tend to raise the standard of care for all cardiac patients in our communities, not just those who make it to a “center of excellence.” Policymakers must consider not only risk but also benefit for the entire community.

Finally, identifying 2 h to OR for emergency surgery as a standard of excellence is laudable. Providing a single solution for all communities is presumptuous.

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Pushing the Envelope Too Far?

We read with great interest the report by Lotfi et al. (1) and the accompanying editorial comment by Dehmer et al. (2). We would like to share our experience on percutaneous coronary intervention (PCI) without on-site cardiothoracic cover in our hospital. From January 2003 to December 2003, we performed a total of 856 cases of PCI. Of these, 338 (40%) were elective cases and 518 (60%) were unstable cases. As with practices similar to other hospitals in the United Kingdom, most of our unstable cases were for acute coronary syndrome with or without elevation of troponin levels and post-ST-segment elevation infarct unstable angina. Approximately 10% of our acute cases were primary PCI (n = 18) and rescue PCI (n = 29). Use of abciximab was 70.2%. Overall procedural success was 90%, and partial success occurred in another 5%. Redo PCI for acute and subacute closure was 1.2% (10 cases). Overall major adverse cardiac events were 2.4%, with a 0.6% incidence (5 cases) of urgent coronary artery bypass grafting (UCABG) and a mortality of 0.5% (4 cases). The UCABG and mortality were all from unstable patients. We encountered no delay in surgical transfer as the cardiothoracic center is just a few miles away from our hospital. Our figures were compatible with recent reports and trends (3–5); but more importantly, we have 0% UCABG and mortality in elective patients. We believe that elective PCI without on-site cardiothoracic surgical cover, at least in a high-volume center, does not necessarily convey additional risk of harm to patients (6). Indeed, monopolizing PCI to surgical centers in an era when surgery is on the decline may be reducing access to PCI.

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**REPLY**

We thank Dr. Connolly and colleagues for their interest in our editorial comment (1). They provide a snapshot of their experience performing percutaneous coronary intervention (PCI) at a hospital without cardiac surgery backup. Approximately 40% of their cases were elective, 60% were in “unstable” patients, and about 10% were primary PCIs. They report five cases (0.6%) requiring urgent coronary artery bypass surgery (UCABG) and four mortalities (0.5%). These all occurred in the unstable cohort, with no deaths or UCABG in elective patients. It is not stated whether any of the deaths occurred in the five cases that required UCABG, but we know mortality is increased if UCABG is necessary (2). We understand that full disclosure about complications is difficult given the constraints of a Letter to the Editor, but the question could be asked: has their experience led them to change their practice pattern? Because all of their mortalities and UCABG occurred in unstable patients, are unstable patients now being referred to the surgical center just a few miles away?

In addition, if one accepts the report of Lotfi et al. (3), one out of four patients requiring UCABG would be placed at increased risk of harm if delays to surgery were encountered, and about 70% would require stabilization with a balloon pump. Dr. Connolly and colleagues state there was “no delay in surgical transfer,” but the actual, time required for transfer is not provided. Perhaps these same patients would have died or needed UCABG even if they had PCI at the surgical center. Because the risk of a severe complication from PCI is now very low, even centers with on-site cardiac surgery rarely hold a surgical suite in a state of immediate readiness, but rather depend on the fact that an operating room (OR) and surgeon will be available on short notice should a complication arise. Perhaps in their setting this would result in a similar time delay; however, there is still the issue of moving an unstable patient, often with a balloon pump, from the catheterization laboratory to an ambulance, traveling to another hospital, unloading the patient and transporting him or her to the OR. We acknowledge this can be done, but is this truly in the best interest of the patient when a hospital with on-site surgery is just a few miles away?

Perhaps in the future, PCI will be perfected to the point that the need for UCABG will be zero. Unfortunately, even in the best PCI centers in the world, we are not yet at that point. Should that time come, however, it would be appropriate to perform PCI at centers without on-site surgery. Until then, this argument is not about monopolizing care to surgical centers, but performing PCI under the safest possible conditions one can provide for patients.

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**REPLY**

Drs. Gubner and Rowe express concern about the conclusions and implications of our study (1) and the accompanying editorial comment (2). In regards to transfer delays, data from experienced centers have consistently shown that patients who require urgent coronary artery bypass grafting (UCABG) after failed percutaneous coronary intervention (PCI) have dramatically longer times to surgery in hospitals without versus with on-site surgical availability (359 ± 406 min vs. 170 ± 205 min; p = 0.0001) (3). In this large series, even though the number of patients with three-vessel disease was significantly less in the group without on-site surgery (9% vs. 22%; p < 0.05), the mortality rate was not lower—thus raising concerns that delays to surgery may have been a detrimental factor. Although all of the UCABG patients in our cohort who had at least one of the prespecified criteria were rushed to surgery within 2 h, we did not suggest that this time frame should be mandated as the “standard of excellence.” However, it would be reasonable to suggest that rapid treatment of these unstable UCABG patients is important and more likely to be accomplished at centers with on-site surgical availability. Also, there are other incentives (i.e., financial, access) to establishing new elective angioplasty programs without on-site cardiac surgery, and our study’s main objective was to add information on the potential risk of doing so. We believe it is in the best interest of patients and the cardiology community to have well-delineated strategies to monitor the expansion and performance of such centers in a carefully transparent fashion.

We appreciate the comments of Dr. Connolly and colleagues detailing their experience with angioplasty without surgical backup. The 0.6% UCABG rate is similar to the rate in our report, but with only 338 elective cases in their cohort, it is difficult to make any generalizable statements about the safety of elective angioplasty without surgical backup. In our report, 15 (0.5%) of the 3,039 patients who had elective angioplasty required UCABG. One-third of these elective patients who required UCABG met our prespecified criteria for increased harm attributable to delays of surgery.

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