

Exercise-Induced Mitral Regurgitation and Antibiotic Prophylaxis Against Infective Endocarditis in Mitral Valve Prolapse

I read with great interest the results of the study by Stoddard et al. (1) dealing with exercise-induced mitral regurgitation as a predictor of morbid events in patients with mitral valve prolapse. Their observation raises the important question of which patients with mitral valve prolapse should receive antibiotic prophylaxis against infective endocarditis.

According to the American Heart Association guidelines (2), only those patients with mitral valve prolapse and valvular regurgitation need antibiotic prophylaxis against infective endocarditis. But how do we define mitral valvular regurgitation? Patients with mitral valve prolapse may not have mitral regurgitation at rest but develop it after exercise; exercise-induced mitral regurgitation occurred in as many as 33% of the patients studied by Stoddard et al (1). Many a patient at rest may exhibit a murmur due to mitral regurgitation on one occasion but not on another (3). Mitral regurgitation considerably increases the risk of infective endocarditis (4,5). Infective endocarditis complicating mitral valve prolapse causes considerable cumulative morbidity and incremental health care costs (6), but antibiotic prophylaxis against infective endocarditis is highly cost-effective (7). Therefore, should not all patients with mitral valve prolapse receive antibiotic prophylaxis whether or not mitral regurgitation is evident on routine physical examination?

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Reply

We appreciate the very interesting question raised by Cheng concerning the potential need for antibiotic prophylaxis in all patients with documented mitral valve prolapse, given that mitral regurgitation in this condition may be transient and provoked by exercise (1). Although we cannot advocate the routine use of antibiotic prophylaxis in patients with mitral valve prolapse and no regurgitation during rest, we have adopted this approach in the management of our patients with mitral valve prolapse. This approach is controversial, but we believe that it is

supported by knowledge of the dynamic nature of mitral regurgitation in patients with mitral valve prolapse. However, it is possible that only patients with mitral valve prolapse with persistent compared with transient mitral regurgitation are at higher risk for endocarditis. The ultimate decision to use antibiotic prophylaxis in patients with mitral valve prolapse and no mitral regurgitation at rest must be made on an individual basis. Factors such as the nature of the invasive procedure, previous history of endocarditis and mitral valve redundancy may weigh heavily in the final decision to use or not to use antibiotic prophylaxis. Data from randomized clinical trials are lacking and are needed before definitive conclusions addressing the issue raised by Cheng can be reached.

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International Comparisons of Waiting Times for Cardiovascular Procedures*

As a Canadian clinical cardiologist, I read with interest the article by Carroll et al. (1) and the editorial comment by Ryan (2). I believe that the waiting times provided for Canadian catheterization laboratories and bypass surgery facilities are probably correct, and I agree that these waiting times are longer than they should be. My concern with the article, however, is whether it appropriately demonstrates the difference in access to cardiac care. Access is more than a matter of waiting time for operation, it is also a matter of whether one is considered worthy of being placed on the waiting list at all.

In Canada, every patient who is considered a candidate for angiography is placed on the waiting list for angiography and subsequently on the waiting list for bypass surgery. Whether the individual patient can afford to pay for bypass surgery is not a concern in Canada. My question is, How many patients who fit the profiles in the report by Carroll et al. do not get on the waiting list because they have no insurance and cannot afford to pay for angiography or bypass surgery. I believe that it is better to have everyone wait somewhat longer rather than to provide a shorter waiting time for one group at the expense of no angiography or bypass surgery in the group with no money.

I would be interested in a report that canvassed cardiologists and primary care physicians, especially in some of the more economically disadvantaged regions, to determine how many U.S. patients do not make it onto the lists. Carroll et al. do quote an American Medical Association poll showing that the majority of Americans would prefer to spend more on health care and receive it quickly than wait longer for lower cost care. My question is, What about the Americans who cannot

* The opinions expressed in this letter are those of the author and do not necessarily reflect those of the Department of National Defence, Canada.

afford to pay more (or pay anything) for their angiography or bypass surgery? How well are they served by the system? In Canada, we consider everyone with the clinical indications for coronary angiography or bypass surgery worthy of having the procedure, regardless of income.

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Reply

Aday et al. (1) have defined *access* as those dimensions that describe the potential and actual, or realized, entry of a given population into the health care delivery system. Access to health care depends on many factors, such as race, culture, geographic location, financial and insurance status. For numerous reasons, equal access for all citizens to health care services in the United States has not yet been achieved. Kafka appropriately points out some of the differences between the Canadian and the U.S. health care systems and the fact that Canadians have "chosen" to emphasize access to primary care for all its citizens, apparently at the expense of "prolonged" waiting times for highly technical procedures. Certainly these issues must be addressed (as emphasized by Ryan [2]): How long a wait is too long? Are there negative consequences of too long a wait? Should the procedure in question be performed in the first place? However, I think that the fundamental issue is more a reflection of societal priorities. Do we as a society value health care services for all our citizens? Do we provide the financial resources so that all members of society, regardless of financial or insurance status, have access to primary and tertiary care in a timely manner? Canada has certainly taken a more committed role to universal access than has the United States. When the issue of what constitutes excessive waiting times are determined, it will be interesting to see whether or not Canadians will be willing to provide the financial support needed to develop and maintain a rapid-access primary and tertiary care system. For now, until we in the United States decide whether or not health care is a priority, the debate on how best to reform our health care system will continue with more unanswered questions than productive change.

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Reuse of Balloon Catheters for Coronary Angioplasty

We congratulate Plante et al. (1) for their study in which they compared the outcome of balloon angioplasty in two institutions, with and without the strategy of reusing balloon catheters. We believe that some differences in the results are related to differences in the strategy of balloon dilation. It is evident from the report that in the reuse center, a small balloon (smaller than the size of the artery) was used to predilate the artery initially. This technique explains the difference in the number of balloon catheters used to dilate a single lesion: 2.4 in the reuse center and only 1.2 in the single-use center. The performance of a reused balloon is not as good as that of a new balloon. However, this fact does not explain the observed difference between centers and the number of balloons per lesion. In 90% of patients at the reuse center the lesion was crossed with the first attempted balloon catheter, yet 2.3 balloons were used on average per lesion in these patients. Whether small-sized reused balloons were used initially to ensure crossing of severe narrowings or whether predilation was the preferred strategy regardless of reuse is not clear.

At our institution 5,676 angioplasty procedures were performed over the past 10 years. During this period we were routinely using reused balloons, guiding catheters and accessory kits. Our reuse protocol is very similar to that described in the current report. We recently reported our results in a consecutive series of 2,069 angioplasty procedures (2). A mean of 1.54 lesions were dilated per patient. We used an average of 1.95 balloons/patient (1.27 balloons/lesion); the number of balloons used per lesion is very similar to that reported from the single-use center. Each balloon was used an average of two times; thus, for each patient approximately one new and one reused balloon were used. Operators at our institution are free to choose a new balloon whenever they believe that crossing the lesion might be difficult or whenever high risk angioplasty is performed.

On the basis of our experience, we believe that angioplasty can be safely performed with selective use of a reused balloon. Insofar as cost calculations are concerned, the cost of a single balloon is not as important as the cost of the total number of balloons used per dilated lesion. For example, balloon cost per lesion dilation will be greater in centers that use 2.4 balloons/lesion with an average of three reuse cycles compared with those that use 1.2 balloons/lesion with an average of one reuse cycle. The difference is the cost of two reuse cycles.

A randomized study is needed to examine the safety and cost-effectiveness of reusing balloons. Three groups should be compared: 1) no reuse; 2) wide use of reused balloons with predilation of severe lesions with small balloons; and 3) selective use of reused balloons.

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