



Acute decompensated heart failure

Although Larry Allen and Christopher O'Connor's review of the management of acute decompensated heart failure¹ was generally well written, I have reservations about their interpretation of the evidence concerning the role of loop diuretics, specifically furosemide, and their recommendations regarding furosemide's place in the treatment of acute decompensated heart failure.

First, I disagree with their implication that congestion indicates volume overload and their suggestion that clinicians consequently "rely heavily on diuretic therapy." Such statements help to perpetuate the misuse of furosemide in acute decompensated heart failure. Up to 50% of patients with acute cardiogenic pulmonary edema are euvolemic, and treatment should emphasize fluid redistribution rather than fluid removal. Second, although diuretics have been weakly shown to decrease mortality,² if they are relied upon exclusively in acute care in hospitals they have the opposite effect. Third, in acute decompensated heart failure caused by high afterload (e.g., hypertensive emergencies), renal perfusion can drop by as much as 80% and furosemide will produce a delayed diuretic effect 30–120 minutes after administration. Finally, there is very little evidence for any beneficial hemodynamic effect of furosemide. In fact, many studies have shown that furosemide is responsible for adverse hemodynamic effects in pa-

tients with acute decompensated heart failure, because it causes an initial release of catecholamines and activates the renin–angiotensin system.^{3–5}

In conclusion, I disagree with the authors' summary that "therapy with a loop diuretic currently forms the foundation" of treatment of acute decompensated heart failure despite good evidence that loop diuretics should be reserved for use as third-line agents behind therapies to reduce preload and afterload (e.g., nitroglycerin and angiotensin-converting-enzyme inhibitors) in acute decompensated heart failure in the hospital setting.

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I read with interest the review article on the management of acute decompensated heart failure by Larry Allen and Christopher O'Connor.¹ The authors commented that nitroglycerin is probably underused in patients presenting with acute decompensated heart failure. However, in Table 1, in which they recommend switching from sublingual to intravenous delivery of nitroglycerin, the dose they suggest for initiating intravenous delivery seems low. A sublingual regimen of

0.4 mg every 5 minutes (the typical dose at my institution) is mathematically equivalent to 80 µg/min.

The bioavailability of sublingual nitroglycerin is cited in a 1998 study as 38%,² but it can be highly variable.³ In many patients the tablets appear to be absorbed quickly and completely, but not infrequently one finds a tablet that remains undissolved after 5 minutes. In the latter circumstance, a lower dose of intravenous nitroglycerin, such as that recommended by the authors, would be suitable. In patients with marked hypertension not responding to completely dissolved sublingual nitroglycerin, a higher starting dose may be more appropriate.

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[The authors respond:]

In our review, in particular in the section on loop diuretics, we attempted to outline many of the controversies associated with the treatment of volume overload in acute decompensated heart failure.¹ We provided 3 references to support the statement that use of loop diuretics in the acute setting is associated with increased mortality. We highlighted the potentially detrimental vasoconstrictive properties of furosemide. We also recognized the importance of alternative approaches, including therapy with vasodilators and positive airway pressure.

Joe Nemeth is correct that elevation

of pulmonary capillary wedge pressure (“congestion”) is not necessarily equivalent to volume overload. However, it is our understanding that the vast majority of patients in this situation do have total body volume overload, as evidenced by edema, increased venous filling pressures and hemodilution.^{2–5} From our clinical experience we would argue for some form of volume reduction therapy as part of the overall treatment strategy for most patients presenting with worsened heart failure and signs of congestion. Few clinicians would dispute that removing fluid from such patients makes them feel better. To further study these issues, we are participating in the development of a randomized trial sponsored by the National Institutes of Health Heart Failure Network in which low and high doses of furosemide will be compared in the treatment of acute decompensated heart failure.

The dose conversions for sublingual to intravenous nitroglycerin provided by Howard Smithline are very helpful. Patients with marked hypertension who tolerate sublingual nitroglycerin may certainly be started at relatively higher doses than we recommended in our article. However, the effect of a single dose of sublingual nitroglycerin is typically short-lived, so direct comparison with a continuous infusion of nitroglycerin may not be appropriate. Hypotension is problematic in the management of such patients and consequently we use a conservative approach, starting with a relatively low dose of intravenous nitroglycerin that is then titrated upward rapidly as tolerated by the patient, as evidenced by hemodynamic measurements and symptoms.

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Eating well

The criticism levelled at *Eating Well with Canada's Food Guide*¹ in a recent *CMAJ* news piece² does not take into account the evidence that underpins the recommendations in the guide nor the extensive consultation process that preceded its writing. In particular, the comment that the food guide is “obesogenic”² is unwarranted.

The eating pattern recommended in the guide was developed using an extensive modelling process to ensure that it met nutrient standards and energy recommendations (dietary reference intakes) and was consistent with evidence linking food with the risk of developing certain chronic diseases. Health Canada consulted extensively with consumers, health professionals and food industry representatives and sought advice from 3 expert panels that included dietitians. It is noteworthy that feedback received from testing the guide with focus groups of consumers and health intermediaries (such as teachers, physicians, primary care nurses, home economists and fitness specialists who play a role in disseminating nutrition guidelines to consumers) did not support the inclusion of information about calories. Rather, the focus groups recommended strengthening the messages that provide practical advice on the types of foods to choose and those to limit and including messages on physical activity. The number of calories any one person needs can only be calculated after careful consideration, in consultation with a registered dieti-

tian. Focusing on calorie counting alone can result in very unhealthy dietary practices.

Eating Well with Canada's Food Guide is a fundamental tool for health educators, but it cannot be expected to meet all educational needs. It is not designed to provide a weight-loss regimen; rather, it promotes a pattern of healthy eating and daily physical activity over a lifetime.

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Access to the medical literature

We fully agree with Brad MacKay¹ that nationwide access to the Cochrane Library is a priority, especially because only 10%–15% of Canadians, mostly medical students and academic researchers, currently have access to this resource. However, Canadian physicians, health care professionals and the public need more than access to just the Cochrane Library; they need coordinated access to all electronic health information resources (including databases, journals and books) as well as user training and support.² The Canadian Health Libraries Association has been championing a National Network of Libraries for Health, the vision of which is to “ensure that all health care providers in Canada will have equal access to the best information for patient care.”³ Canadian health libraries would handle national coordination of access, training and support.

In 2006, Sir Muir Gray was knighted for his work, including the development of the National Library for Health in the United Kingdom. In a *CMAJ* guest editorial published last year, he stated that it