

LETTERS TO THE EDITOR

Diuretic use and abuse in systolic cardiac failure: a recipe for renal impairment?

EDITOR.—We read Broadley and Marshall's letter with great interest.¹ Diuretic treatment has a well established role in management of some cases of decompensation of heart failure. However, rather more common than worsening contractile function are general illnesses, diuretic resistance, or failure of adherence to prescribed treatment (diuretic or otherwise). The concept of patient self management of diuretic treatment is certainly simple, but is not new, and is already widely used in selected patients. It can work well, usually by titrating up loop diuretic. There are several practical problems that befall the proposed advice when widened to the greater heart failure population.

As is often stated, most heart failure patients are elderly or very elderly and cannot easily cope with the basic multiple prescribed medicines, far less manipulate them further. Second, the change in weight described as being recorded on bathroom scales (1 kg rise) is trivial and certainly close to the variance seen on repetitive measurement in follow up of heart failure. In a previous neurohormonal study we found a 0.5–1.5 kg weight increment in association with delayed dosing of routine frusemide, basically overnight. Third, in a repetitive community follow up of a congestive heart failure cohort (42 patients) over two years, we found huge variation in the prescribed dose of diuretic. The main change was general practitioner initiated increments (doses were almost never reduced) in response to ill defined episodes of breathlessness. As is obvious, even in patients with well documented systolic failure, there are many non-cardiac causes of episodic breathlessness—for example, intercurrent infection, paroxysmal arrhythmia (mostly atrial fibrillation), worsening renal impairment (diuretic induced), fluid loading (as alcohol), smoking related illness, etc. These are inappropriately managed by increasing diuretic prescription, whether initiated by clinician or patient. Failure to define this early could result in increased hospital admission rates through treatment delay.

Furthermore, the strategy of temporary metolazone supplements (in addition to a loop diuretic?) seems a very aggressive choice. There are well documented problems with this combination, which outstrip nearly all other combination regimens. These are seen regularly in hospital medicine, where administration is generally only used to initiate diuresis during episodes of resistance and then only under close supervision of renal function.^{2,3} This is surely not a combination that should be recommended for general practice, far less unsupervised patient use.

While we agree with the basic tenet that some heart failure patients (probably younger and therefore a minority) can manipulate volume status with diuretics, we would question the numbers who can do so successfully. The selection of supplemental metolazone-loop diuretic combination may be problematic where patients often do not follow

prescribed treatment at the best of times. Certainly a blinded trial of the safety and efficacy of this particular form of patient self medication would be in order before this advice is widely adopted.

ROBERT J MACFADYEN
Highland Acute Hospitals NHS Trust,
Cardiac Unit (7th Floor),
Raigmore Hospital, Old Perth Road,
Inverness IV2 3UJ, UK
email: robert.macfadyen@raigmore.scot.nhs.uk

ALLAN D STRUTHERS
Tayside University Hospitals NHS Trust,
Ninewells Hospital and Medical School,
Dundee DD1 9SY, UK
email: a.d.struthers@dundee.ac.uk

- 1 Broadley AJM, Marshall AJ. Self administration of metolazone reduces readmissions with decompensated congestive cardiac failure [letter]. *Heart* 1999;82:397–8.
- 2 Dormans TJP, Gerlag PGG. Combination of high dose furosemide and hydrochlorothiazide in the treatment of refractory congestive heart failure. *Eur Heart J* 1996;17:1876–4.
- 3 Channer KS, McLean KA, Lawson-Matthew P, et al. Combination diuretic treatment in severe heart failure: a randomised controlled trial. *Br Heart J* 1994;71:146–50.

This letter was shown to the authors who reply as follows:

As well as making some general points about the treatment of heart failure with diuretics, MacFadyen and Struthers have detailed four reasonable and important criticisms of our practice in their letter, to which we would like to respond.

Their first point is that “most heart failure patients are elderly or very elderly and cannot easily cope with the basic multiple prescribed medicines, far less manipulate them further.” It is true that with the advent of trials showing titrated β blockers and now spironolactone are of benefit to patients with congestive cardiac failure (CCF), their pill boxes have never been so full. However, if there is good evidence that the addition of another drug will improve a patient's quality of life then it should be prescribed, even though it makes their therapeutic regimen more complex. Also, we think that elderly patients with CCF and without mental impairment are generally able to comply with multiple medications, especially once the reasons for taking them are carefully explained, and there is evidence to support this impression.¹ Of course, lack of mental impairment does not necessarily mean an elderly person with CCF will absorb and act on our advice; as we say in our letter, we require the patient to be “well motivated” as well. We know of no objective measures of motivation in this respect and in the end it comes down to judgment.

Their second criticism is that a rapid weight increase of 1 kg in a patient with CCF is of no clinical importance. We do not know of any research that has quantified how much rapid weight increase is clinically important in patients with multiple admissions with decompensated CCF. Our practice of specifying a 1 kg gain as of importance reflects our common observation on the ward that a patient who is still decompensated one day may be stable the next, after a diuresis related weight loss of only 1 kg; we are not alone in that view.² We acknowledge this may be too low a figure for some patients and perhaps in future our advice in this respect will have to be tailored to individuals.

Their third point is that not all episodes of breathlessness will be due to decompensated

Rapid Responses now available on eHeart

The full text *Heart* web site (<http://www.heartjnl.com>) now has a Rapid Response facility, which means that letters can be “published” on *eHeart* within seven days of submission.

To send a Rapid Response, please access *eHeart* and then access the article to which your letter relates. In the top right hand corner of the screen there is a box that contains an invitation to send a Rapid Response (**eLetters send a response to this article**). Click on this and then type in your letter or paste it from a word processor. All Rapid Responses are screened within seven days and, providing they are not obscene, libellous, or unethical, they are then posted on the web site (Rapid Responses are not edited). We will continue to publish in the paper version of *Heart* (edited) letters that contribute substantially to the literature.

CCF, and if our patients fail to recognise this they might inadvertently take extra diuretics for non-CCF breathlessness when in fact they need some other treatment entirely. This might in turn lead to avoidable hospital admissions. We are aware of this problem, but have found that patients who have lived with CCF for many years are good—though not perfect—at recognising a deterioration in their health for other reasons, and seek medical help. We would like to re-emphasise that, thus far, our practice appears to decrease total admissions rather than increase them.

Their final criticism is that the choice of metolazone as the as needed diuretic is “aggressive”. We simply disagree: used at the doses and in the manner we have described we think it is a sensible choice with an acceptable safety profile. We use a short course of metolazone in combination with regular loop diuretics because evidence shows that this combination is effective in increasing diuresis in decompensated CCF where simply increasing the dose of loop diuretic is not.^{3–6} Indeed, review of the records of the eight patients we reported showed that two had had their loop diuretics doubled by their general practitioners without benefit in the days before their index admissions.

Ultimately, the gold standard way of deciding if ours is “good practice” is to conduct a randomised controlled trial, where the myriad small print issues are relegated to the background and we can focus on answering the key questions: “Does it work?” and “Is it safe?”. Such a trial is underway.

- 1 Rich MW, Gray DB, Beckham V, et al. Effect of a multidisciplinary intervention on medication compliance in elderly patients with congestive heart failure. *Am J Med* 1996;101:270–6.
- 2 Trelawny JMS. Can we improve diuretic response in heart failure? *Br J Hosp Med* 1996;55:616–19.
- 3 Cody RJ, Spencer HK, Pickworth KK. Diuretic treatment for the sodium retention of congestive heart failure. *Arch Intern Med* 1994;154:1905–14.
- 4 Channer KS, McLean KA, Lawson-Matthews P, et al. Combination diuretic treatment severe heart failure: a randomised controlled trial. *Br Heart J* 1994;71:146–50.
- 5 Sica DA, Gehr TWB. Diuretic combinations in refractory oedema states. *Clin Pharmacokinetics* 1996;30:229–49.
- 6 Cohn JN. Overview of the treatment of heart failure. *Am J Cardiol* 1997;80:2–6L.