Audit of communication with GPs regarding renal monitoring in CHF patients: are we doing well?

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Monitoring renal function is essential in chronic heart failure (CHF) patients on the combination of aldosterone antagonists (AA) and either angiotensin-converting enzyme inhibitors (ACEIs) or angiotensin receptor blockers (ARBs). The National Institute for Health and Care Excellence (NICE) recommends renal monitoring at weeks 1, 4, 8, 12 and then every three months. We audited the compliance of discharge notes to general practitioners (GPs) by hospital staff with NICE's safety recommendation. We reviewed the notes of all consecutive CHF patients who were discharged in two periods (1st October to 20th November 2011 and 1st June to 30th June 2012) on the above combination therapy.

In the first audit, of 83 patients discharged on the combination (21 patients were commenced on it in the index admission), 43% met the audit standard. In the re-audit, 51 patients were discharged on the combination (12 had it commenced during the index admission), and 58% met the audit standard (p=not significant). In both audits, no advice at all was made to monitor renal function in 28% of the discharge notes.

Despite a trend of improvement in the rate of adherence to NICE's safety recommendation between the two audits, almost a third of the patients were discharged without advice to the GP to monitor renal function.

Introduction

Therapeutic interventions in chronic heart failure (CHF) can lead to renal dysfunction. Combination of the aldosterone antagonist (AA) spironolactone with either angiotensin-converting enzyme inhibitors (ACEIs) or angiotensin receptor blockers (ARBs), reduced mortality and hospitalisation rates and improved the New York Heart Association (NYHA) functional class in patients recruited into the Randomised Aldactone Evaluation Study (RALES).[1] That study showed no statistically significant difference in the incidence of hyperkalaemia between those on AA and those on placebo.[1] However, when the results of the trial were implemented into clinical practice, there was an increased incidence of hyperkalaemia and renal failure among patients commenced on this combination.[2] This was followed by published advice to practitioners on the safe monitoring of patients on this combination.[3]

The National Institute for Health and Care Excellence (NICE) guidance on the diagnosis and management of CHF in 2010 (CG108) stressed the importance of careful monitoring of renal function in these patients. It stated that potassium level should be checked at weeks 1, 4, 8 and 12, and then every three months.[4]

We were concerned that some GPs were not alerted to the latter specific advice about monitoring renal function in the brief discharge notes (TTO) of patients discharged on this combination (AA with either ACEI or ARB). Thus, we conducted this audit.

Methods

We audited the adherence at Sheffield Teaching Hospitals NHS Foundation Trust (STH) to the safety recommendation by NICE with regards to advising GPs to monitor the renal function of patients with CHF discharged on the combination of AA and either ACEI or ARB. The aim was that 100% of patients should meet the standard (clear and specific advice to GP to monitor urea and electrolytes at the above-mentioned frequency). The Heart Failure Service database at STH was used to

Table 1. The percentages of communication mode in the two audits

Audit	Group A Specific instructions	Group B Check U&Es	Group C No mention
2011	43%	29%	28%
2012	58%	17%	25%

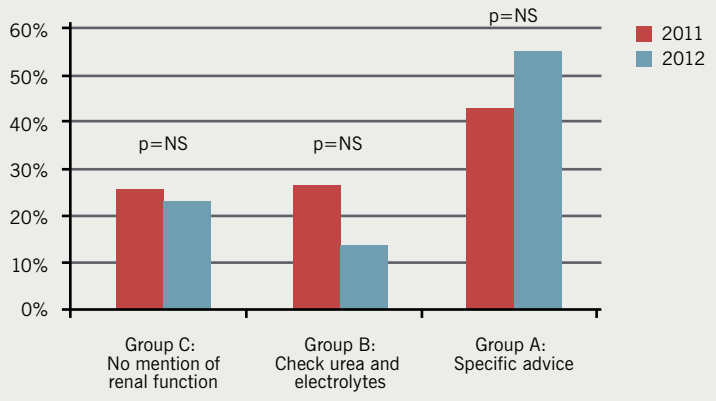
Key: U&E = urea and electrolytes

Table 2. The percentage of communication mode in both audits

Group A Specific instructions	Group B Check U&Es	Group C No mention
48%	24%	28%

Key: U&E = urea and electrolytes

Figure 1. The percentage of patients in each of the three groups in both audits. Note that there is no statistically significant difference between the results of the two audits



Key: NS = not significant

identify the heart failure patients discharged on the combination therapy of AA with ACEI/ARB. To ensure patients' safety, the GPs were contacted post-discharge if the specific information regarding renal monitoring had not been transcribed on the TTO.

Two investigators (MZK and JB) reviewed the notes of consecutive CHF patients discharged on the combination therapy. The advice on the TTO was classified, on the basis of completeness of advice to the GP regarding the NICE safety recommendation, into three groups:

- Group A: Specific instructions in the discharge notes were given to check the patient's renal function on weeks 1, 4, 8 and 12, then every three months
- Group B: The discharge note advised renal function monitoring without specifying the frequency
- Group C: The discharge note did not mention renal function monitoring.

After the first audit, the results were publicised to the senior medical staff by email and then to all the medical staff in a grand-round. The audit was run again to look at whether there was any improvement of practice.

The results of the two audits were compared using Fisher's exact test, in view of the small sample sizes, to look for statistically significant differences.

Results

The first audit was conducted between 1st October 2011 and 20th November 2011. During this period, 83 patients were discharged from hospital with CHF. Of these patients, 35 patients (42%) were on a combination of ACEI/ARB plus an AA. Of those patients, 60% had the combination therapy prescribed or its doses changed during the index admission. The latter group was the focus of the first audit.

In the first audit: nine of the 21 patients (43%) were in group A, 29% of the patients were in group B, and 28% of the patients were in group C (**table 1**).

We repeated the audit in the month of June 2012. During this second period, 51 patients were discharged with CHF. Of these, 16 patients (31%) were discharged on the combination therapy in question. However, only 12 patients had the combination prescribed or its doses altered during the index admission, and were the focus of the second audit.

In the second audit, seven of the 12 patients (58%) were in group A, 17% were in group B and 25% were in group C (**table 1**).

The audit standard was achieved in the combined two audits in 48% of the patients (group A) and 24% were in group B (**table 2**).

Comparing the results of the two audits, no statistically significant difference was found despite the apparent rise in the percentage of patients in group A at the expense of group B (**figure 1**).

Group C was comprised of 28% of the patients in both audits. We ensured patients' safety was maintained by informing the GPs of the patients in groups B and C. This exercise proved to be time-consuming for the heart failure nurses. All patients have eventually received the same standard of care. However, the responsibility for safe practice ultimately lies in the hands of the prescribing physician writing up the discharge note (TTO) and the supervising consultant.

Discussion

The long-standing medical principle of doing no harm has withstood the test of time and remains relevant. CHF has a higher mortality rate than any other cardiovascular disease.

Patients with CHF caused by left ventricular systolic dysfunction (HF-LVSD), have been shown to achieve lower morbidity and mortality rates from being given the combination therapy of AA and ACEI or ARB. Derangement of kidney function as a result of this combination is not uncommon, and can be devastating especially if hyperkalaemia occurs. This has been demonstrated repeatedly since the results of the RALES study were implemented in clinical practice. The randomised-controlled trial did not show a statistically significant difference in the incidence of hyperkalaemia between those on the active therapy (AA) and those who were on placebo. However, the environment of the randomised-controlled study is slightly different from clinical practice. These differences include adherence to the strict protocol of frequent monitoring. The contrast between this and clinical practice led many authorities to alert practitioners to this danger. NICE proposed specific recommendations to ensure patients' safety. We, in the heart failure services of Sheffield Teaching Hospitals, have come across patients discharged on this combination with no arrangements for monitoring the renal profile at regular intervals. We investigated the frequency of this problem and whether it reflects a systematic failure. We aim to correct any errors of practice.

We audited the degree of adherence to the safety recommendation by NICE on the need for and the frequency of monitoring the renal profile in CHF patients treated with the combination of ACEI/ARB and AA. Following the first audit, we publicised the results for educational purposes, and closed the audit loop by re-audit for a second period. Despite its small size, the audit allowed us to have an insight into the practices within the institution. The audit highlighted the concern that almost a third of the patients on this combination are discharged to their GPs without appropriate advice regarding monitoring of renal function.

There was a statistically insignificant trend of improvement in the rate of concordance with the safety recommendation from 43% to 58% between the two audits. The improvement was based on fewer patients discharged with vague requests to monitor renal function (group B: the percentage of these patients dropped from 29% to 17%). However, a fixed proportion of the patients (28%) were being discharged with no advice about renal monitoring, reflecting that a group of trainees are not recognising the importance of this safety recommendation being communicated to GPs.

Communication failure in healthcare is the source of many complications and complaints.[5] We attempted to overcome the problem. We publicised the findings internally by email, departmental meetings and grand-round to announce the finding of the audit in the hope of educating the medical staff on the importance of the issue and the concerns raised by the findings of the first audit.

The issue of patients' safety with the combination of ACEI/ARB and AA was raised almost 10 years ago when the Canadian study was published showing a real rise in the frequency of hyperkalaemia and renal failure following the implementation of the results of the RALES study.[6] This raises two philosophical questions: whether the patients recruited into randomised clinical trials reflect real-life patients, and whether the medical practitioners are cherry picking when implementing evidence-based medicine!

On the first question, applying evidence into clinical practice creates new unencountered problems caused by comorbidities in some patients who would have been excluded from randomised clinical trials or by applying evidence to under-represented groups such as very old adults. In the latter group, we are increasingly realising how deceptive the level of serum creatinine could be when compared with the glomerular filtration rate (GFR), which more accurately reflects the renal function of the patient. The majority of the clinical trials used creatinine levels rather than GFR or estimated GFR (eGFR) when patients were recruited.[7,8]

On the second question, it is important that the outcome of a trial should be implemented along with any safety procedure applied within that trial. RALES and other trials followed stipulated frequent monitoring of the renal function of these patients.[9,10] It is incumbent upon medical practitioners to be aware of and to adhere to the medical evidence in its entirety.

We are publishing notices on the wards to remind trainees about this safety recommendation, and we repeat it in the advice by the heart failure multi-disciplinary team ward rounds. We are also sending the recommendations of the heart failure multi-disciplinary team to the GPs, thus, raising their awareness of the plan of management as recommended by the specialist, including the safety advice. We recognise that changes in practice can only be achieved through education and the process is frequently iterative

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Conflict of interest

None declared.

Editors' note

See the comment on this article by John Pittard on pages 116 of this issue.

Key messages

- Patients with heart failure due to left ventricular systolic dysfunction derive reduction of their morbidity and mortality rates from the combined suppression of the renin–angiotensin–aldosterone system by angiotensin-converting enzyme inhibitors (ACEIs)/angiotensin receptor blockers (ARBs) and aldosterone antagonists (AA)
- Patients with heart failure on the combination of ACEI/ARB and AA should have their renal function checked at 1, 4, 8 and 12 weeks following commencement of therapy, and then every three months
- Changes in practice can only be achieved through education and the process is frequently iterative

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A comment from primary care

Dr John B Pittard, a general practitioner in Staines, comments on whether implementing these research findings is achievable in primary care

The Sheffield audit of heart failure discharge advice given to GPs by Kanaan, Bashforth and Al-Mohammed (see pages 113–16) illustrates perfectly the imperfections of implementing research findings and guidelines into every day clinical practice. The paper rightly points out the selective nature of the entry criteria of patients to RALES (Randomised Aldactone Evaulation Study).[1] Most research trial patients are more scrupulously managed and monitored than in real world circumstances. The traditional way of organising discharge summaries usually defaults to the least experienced junior staff. The perception is often that a career in accountancy would be more exciting than this task.

The majority of hospitalised chronic heart failure (CHF) patients will be elderly, with challenging personal fitness and domestic circumstances. Most will be New York Heart Association (NYHA) grade III/IV with imperfect renal function aggravated by use of angiotensin-converting enzyme (ACE) inhibitors/antiotensin receptor blockers, diuretics and perhaps spironolactone. With assiduous medication supervision, many will enjoy some digitalis and beta blockers as well. Advice from the National Institute of Health and Care Excellence (NICE) to monitor bloods at weeks one, four, eight and 12 is easy to generate in a comfortable conference room before lunch by well meaning folks who will rarely call in at home of a grade IV CHF patient. It is certainly reasonable to add this advice in a one-line summary on the discharge letter. Perhaps a better way would be to have a template default letter generated by computer to be routinely added to the CHF patient discharge to the GP, rather than around a quarter of all letters failing to mention this.

In the community these high maintenance CHF cases are best shared by GPs and specialist heart failure nurses. The majority of contacts will be where these patients reside. The question of home visiting and access, then successful venesection and delivering samples in the first half of a '9 to 5' day at a local laboratory takes on the logistical challenge of a NASA moon programme. The withdrawal for many patients of a home support service for such testing has occurred with the fragmentation of the provider services; many of whom win contracts by reducing services and employing fewer staff. There are many examples of good practice such as community matrons, virtual wards and some practices managing to fund home blood testing. For others a modified NICE guideline such as monitoring at one, six and 12 weeks might be better than currently is offered.

Ideally the discharge advice can have NICE monitoring guidance as a computer generated addendum. Clinical commissioning groups might explore local solutions to feasible testing provision for these CHF patients. They certainly generate excessive hospital costs if readmitted with electrolyte and drug concordance issues. The improvement in day-to-day well being with well-managed CHF patients remaining at home is every bit as important as the postulated survival benefit. Personally, I cannot recall a death certificate in 30 years that mentioned hyperkalaemia.

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