The basics of heart failure management: are they being ignored?

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Abstract

Background: Advances have been made in the medical management of congestive heart failure. However, there is concern that these changes may not be transmitted to the heart failure population in the community. Other impediments to improved prognosis, such as failure to apply non-pharmacological strategies and poor patient comprehension may also be prevalent in the community. Aims: The purpose of this study was to assess physician practice and patient knowledge in a heart failure population admitted to a University Hospital in Ireland. Methods: Patients admitted with a primary diagnosis of heart failure were studied. Estimation of ejection fraction was used to subdivide the population into heart failure with impaired and normal systolic function. Patients' course in hospital was noted with reference to management by cardiology or internal medicine, use of angiotensin-converting enzyme inhibition therapy and digoxin and application of dietary and rehabilitative services. Patient knowledge was assessed by questionnaire. Results: Eighty patients were included in this study. Two-thirds of the population had impaired systolic function. The majority of patients were managed by internal medicine physicians, and this population was older and more likely to have normal systolic function. Prescription of converting enzyme inhibitor therapy was more frequently used in cardiology-managed patients (96 vs. 70%, \(P < 0.05\)). Neither group applied dietary or rehabilitative advice to a significant level. Patient comprehension was poor, especially with regard to understanding of medicine and the value of weight measurement. Conclusion: The above data demonstrate a lack of use of rehabilitative and dietary services and poor patient knowledge. These deficiencies may play a role in determining outlook and may impede the expected improvement in prognosis that has been witnessed in large randomised studies. © 2000 European Society of Cardiology. All rights reserved.

Keywords: Heart failure management; Converting enzyme inhibition; Salt restriction; Compliance

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1. Background

Based on data from large multicentre studies it is clear that significant advances have been made in the management of congestive heart failure [1,2]. However, there is concern that outcome in this condition in the community may not be as good as that demonstrated in multicentre studies. One well-accepted and unalterable explanation for this discrepancy would be the clear differences between ‘study populations’ and the ‘community population’ with heart failure [3]. However, there are other potential reasons which could be addressed with resultant improvement in outlook for the general heart failure population. These include the failure to adequately translate the pharmacological advances documented in studies into routine community practice, as well as a possible lack of focus on non-pharmacological strategies thought to improve morbidity in heart failure. Moreover, poor patient understanding of heart failure may also contribute to less than expected outcomes. If the above factors are characteristic of community practice in heart failure, then there exists significant barriers to the improvement in outlook for the patient in the community, irrespective of advances seen in multicentre studies.

The purpose of this study was twofold: (1) to prospectively assess management practices in heart failure, focusing on the application of proven standard therapies in systolic dysfunction, use of non-pharmacological strategies in all patients with heart failure and to determine whether there were practice differences between cardiologists and internal medicine specialists; and (2) to assess patient knowledge of their condition.

2. Methods

Between March and May 1998, consecutive patients admitted to St Vincent’s University Hospital with a primary diagnosis of congestive heart failure were screened for inclusion in this study and enrolled following procurement of informed consent. The study was approved by the Hospital Ethics Committee. Patients presenting with an unstable ischaemic syndrome or myocardial infarction associated with heart failure or where heart failure was only one component of a multi-system presentation were excluded. Diagnosis of heart failure was confirmed by two of the authors (MH, KMcD) based on standard criteria; symptoms and/or physical findings compatible with heart failure, chest X-ray evidence of pulmonary venous congestion, objective evidence of cardiac dysfunction, and clinical response to diuretic [4].

On enrolment into the study, basic demographic data were obtained from the chart. Careful record was obtained of past medical history, including any prior history of heart failure and, if present, information on previous admissions. Nature of symptoms and abnormalities on physical examination were also noted. Patients then underwent echocardiography to assess left ventricular function in order to subdivide the population into patients with impaired left ventricular systolic function (ejection fraction < 45%) and those with preserved left ventricular systolic function.

A questionnaire was given to all patients with a previous diagnosis of heart failure to assess knowledge of their diagnosis, their medications, the value of salt restriction and rehabilitation and the importance of regular weight measurement to enable early detection
of impending congestion (Table 1). This questionnaire was given no sooner than 48 h following admission and always at a stage when the patient’s condition had significantly improved. The hospital course of each patient was closely followed until discharge or death. Records were kept of whether care was provided by internal medicine or by cardiology (either directly or consult-driven). Medications were noted both on admission and on discharge. Specifically noted was the use of ACE inhibitor therapy and digoxin in patients with systolic dysfunction as indicators of prescription of appropriate medical therapy. Application of non-pharmacologic strategies was observed as defined by dietary consultation and advice from rehabilitative services. Less structured advice could clearly have been given in other settings but it was felt that this would not be as focused, as expert or revised.

2.1. Statistics

Comparison between patients treated by internal medicine and by cardiology was made using unpaired Student’s t-tests. Data are presented as mean ± 1 S.D.

3. Results

3.1. Patient population

Between the beginning of March and the end of May 1998, 93 patients were admitted to St Vincent’s University Hospital through the Accident and Emergency Department with a presumed primary diagnosis of congestive heart failure (total number admitted to the medical services during this time period was 1380 patients). Subsequently 13 patients were excluded form further analysis because of incorrect admitting diagnosis. Thirty-seven were under the care of internal medicine and at discharge 70% of this group were receiving ACE inhibitor therapy (Table 3). Apparent reasons for not prescribing included progressive renal dysfunction and hypotension. All patients, with one exception, under the care of cardiology were prescribed ACE inhibitor therapy in the setting of systolic dysfunction. Of the 43 patients with prior history of heart failure, 22 had documented LV systolic dysfunction. Eight of this group had been treated with ACEI prior to this index admission.

Digoxin usage was the other therapeutic strategy assessed. Information was obtained from the 40 patients with reduced left ventricular systolic function and no history of atrial fibrillation. In this group 71% of patients under the care of internal medicine and 70% under the care of cardiology were prescribed this medication.

Use of non-pharmacological approaches was uniformly poor. In both groups dietetic services were relatively ignored, with patients under the care of cardiology receiving expert dietetic guidance more frequently than those under the care of internal medicine-treated group. Forty-three of the complete group had an established diagnosis of heart failure and 17 (40%) had been admitted to hospital in the previous 3 months as a result of this syndrome.

3.2. Physician practice

Two-thirds of this population had systolic dysfunction of the left ventricle (n = 54). Thirty-seven were under the care of internal medicine and at discharge 70% of this group were receiving ACE inhibitor therapy (Table 3). Apparent reasons for not prescribing included progressive renal dysfunction and hypotension. All patients, with one exception, under the care of cardiology were prescribed ACE inhibitor therapy in the setting of systolic dysfunction. Of the 43 patients with prior history of heart failure, 22 had documented LV systolic dysfunction. Eight of this group had been treated with ACEI prior to this index admission.

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Table 2

Characteristics of patients admitted with heart failure and treated by internal medicine (IM) or by cardiology (C)

<table>
<thead>
<tr>
<th></th>
<th>IM (n = 58)</th>
<th>C (n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>77 ± 6</td>
<td>68 ± 5</td>
</tr>
<tr>
<td>Male (%)</td>
<td>36%</td>
<td>77%</td>
</tr>
<tr>
<td>Ischaemic heart disease (%)</td>
<td>43%</td>
<td>77%</td>
</tr>
<tr>
<td>Hypertension (%)</td>
<td>60%</td>
<td>45%</td>
</tr>
<tr>
<td>Diabetes (%)</td>
<td>27%</td>
<td>21%</td>
</tr>
<tr>
<td>LVEF &lt; 45% (%)</td>
<td>63%</td>
<td>77%</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>13 ± 2*</td>
<td>10 ± 1*</td>
</tr>
</tbody>
</table>

*P < 0.05 with C.

Table 3

Physician practices; pharmacologic and non-pharmacologic approaches

<table>
<thead>
<tr>
<th></th>
<th>IM (%)</th>
<th>C (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE inhibitor use</td>
<td>70%</td>
<td>96%</td>
</tr>
<tr>
<td>Digoxin use</td>
<td>71%</td>
<td>70%</td>
</tr>
<tr>
<td>Dietary advice</td>
<td>19%</td>
<td>32%</td>
</tr>
<tr>
<td>Rehabilitation advice</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*LVEF is less than 45%.

*P < 0.05 with C.
Table 4

Patient knowledge of congestive heart failure

<table>
<thead>
<tr>
<th></th>
<th>Yes (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness relates to heart dysfunction</td>
<td>37</td>
</tr>
<tr>
<td>Knew medications</td>
<td>33</td>
</tr>
<tr>
<td>Understood action of medications</td>
<td>15</td>
</tr>
<tr>
<td>Daily weighing important</td>
<td>0</td>
</tr>
<tr>
<td>Salt restriction important</td>
<td>16</td>
</tr>
<tr>
<td>Exercise of value</td>
<td>51</td>
</tr>
</tbody>
</table>

medicine (32 vs. 19%, \( P = 0.002 \)). The use of rehabilitative services was even poorer, with only two patients, both cared for by internal medicine physicians, receiving advice from this service.

3.3. Patient knowledge

Patient knowledge of their condition (Table 4) was assessed through use of a standard questionnaire in those with a prior history of heart failure (\( n = 43 \)). Seventeen of this group had been admitted in the previous 3 months with an exacerbation of heart failure. Level of understanding of heart failure was poor. Only 37% of this group understood that their problem was related to heart dysfunction. Two thirds of these patients did not know their medications and only 15% understood their action. Sixteen percent understood the importance of salt restriction and none understood nor had been advised about regular weight measurement. Over half the population understood that exercise was an important component of managing their condition but only 20% undertook regular exercise.

4. Discussion

This observational study was undertaken as a pilot review of practice patterns in a large University-based hospital which receives the majority of its referrals from the local community of approximately 350,000 people in the south-east Dublin area. The data from this study have illustrated some important features, which may reflect routine heart failure management in Ireland. On the positive side, there was reasonable application of relevant medications known to improve morbidity and mortality in systolic dysfunction.

However, there was a very clear lack of use of potentially important non-pharmacological strategies in this condition and, furthermore, it would appear that patient understanding of their condition was very poor.

There has been widespread concern about the lack of use of ACE inhibitors in patients with heart failure associated with left ventricular systolic dysfunction [5,6]. Reasons for this may include failure of the cardiovascular community to effectively spread the message of efficacy of this therapy and a lack of willingness by community practitioners to accept that the results of large multicentre studies apply to the routine patient seen in the community. Recent studies, however, would suggest that there is growing use of ACE inhibitors supported by the data from this patient cohort [7]. More extensive application in the cardiology-treated patients in this group is in keeping with other observations regarding the relative use of ACE inhibitors among cardiologists, internists and family practitioners [8]. The other area of concern with ACE inhibitor usage relates to titration to the appropriate dose. This study did not address this issue as only the in-patient course was noted. In keeping with the known symptomatic benefit of digoxin, data provided in this study demonstrates reasonable use of this agent in systolic dysfunction with preserved sinus rhythm [9].

While medication prescription in the study group appears appropriate, there is a concern with use of non-pharmacological strategies. Only a minority of the patients received dietary consultation specifically aimed at a low-salt diet. While there are no randomised data to demonstrate the benefit of a low-salt diet in heart failure, there is general agreement that adhering to this dietary restriction may be of benefit [10,11].

There was the almost total absence of requests for rehabilitation advice. This is despite the strong but not conclusive evidence that a rehabilitation programme can reduce morbidity in patients with heart failure [12,13]. The failure to prescribe such a programme among these patients is reflected in the poor appreciation of this group of the benefits of exercise.

However, the most notable and concerning finding of this study was the extremely poor level of patient understanding of their condition. This lack of knowledge could adversely influence compliance and thereby have contributed in this group to the high readmission rate within 3 months of discharge in patients with an established diagnosis of heart failure [14,15]. This association between poor patient knowledge and disease morbidity is further supported by the limited data demonstrating that an intensive team approach to heart failure, emphasising non-pharmacological strategies and education, can significantly reduce re-admissions with this syndrome [10,11,16].

Certain aspects of the design of this study need to be emphasised. This was an observational study carried out without physician knowledge of the data being collected so as to minimise the likelihood of influencing decisions. However, as a result it was not possible to get direct information about why certain
therapies or strategies were or were not used. Secondly, the information sought was focused, as it was assumed that the topics chosen reflected practice and knowledge in general. The information clearly applies only to hospital-based in-patient practice, and cannot be interpreted to reflect family physician practice. These data clearly indicate poor patient comprehension but this study did not evaluate carer understanding of heart failure. These would be important data, as available information would indicate that a supportive and knowledgeable carer can improve outlook [17].

In summary, this review of heart failure care in a regional teaching hospital in Ireland highlights appropriate awareness and application of pharmacological agents known to be effective in this syndrome. However, the data also highlight that non-pharmacological strategies are not being appropriately adopted in the care of this patient group. This deficiency may significantly detract from the benefits of new advances and therapies in this syndrome, and in and of itself may contribute to the morbidity of heart failure. While we should continue to develop and improve pharmacological and other strategies in this syndrome we need to ensure that the basics of heart failure care receive equal attention in the community at large.

Acknowledgements

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References


