



NEWSLETTER

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We report highlights from the 9th Annual Autumn Meeting, which was held at the Queen Elizabeth II Conference Centre, London, on 24–25 November 2006. The meeting, entitled “Heart Failure in Older Patients – The Same Only Different”, was held in association with the British Geriatric Society (BGS) Cardiovascular Section, and included sessions by leading practitioners on:

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Report from the BSH Annual General Meeting

The Chairman of the BSH, Professor John Cleland (Kingston-upon-Hull), gave an overview of the activities of the BSH for the previous year and outlined plans for the future. The BSH now has 658 members; the majority are cardiologists and nurses but there has been an important growth in the number of general practitioners and geriatricians. This joint meeting with the BGS helped to further increase the profile of the BSH with geriatricians/care of the elderly physicians.

The British Cardiac Society Annual Scientific Conference in 2006 included seven sessions with BSH involvement. Subjects ranged from treatment of heart failure in the community to surgical approaches to heart failure beyond revascularisation. Continued collaboration with other Societies is planned for 2007.

The BSH has been involved in several initiatives over the past year, including the development of a national heart failure audit database, funded by the

Health Commission, which is currently being piloted in 11 hospitals, and the reporting of a survey of heart failure services in 225 primary care trusts. Other projects have included natriuretic peptide implementation workshops, input to the development of a training curriculum for registrars specialising in heart failure and continuing nurse education. The BSH continues to be involved in the National Knowledge Service Heart Failure Project, aimed at facilitating access to information about heart failure, and the Healthcare Commission Heart Failure Improvement Review, designed to ensure that patients with suspected heart failure undergo appropriate diagnostic tests and, consequently, receive optimal management.

Theresa McDonagh (London), Treasurer of the BSH, presented the accounts for the year ending May 2006 and concluded that the society remained in a good financial state.

Election of a new BSH Board will take place in 2007, when Professor Martin Cowie (London) will take over as Chairman.

BSH events in 2007

Event	Date	Location
3rd BSH Charity Ball	10 March 2007	London
British Cardiovascular Society Annual Scientific Conference	4–7 June 2007	Glasgow
10th BSH Annual Autumn Meeting	23–24 November 2007	London

For more information about any of these events please contact the BSH Secretariat (email: info@bsh.org.uk) or see the BSH website (www.bsh.org.uk).

9th Annual Autumn Meeting of the BSH – Heart Failure in Older Patients – The Same Only Different

Short summaries of presentations made at the 9th Annual Autumn Meeting of the BSH are presented below.

Understanding heart failure in older patients

In the first presentation of the meeting, David Stott (Glasgow) gave an overview of the pathophysiology of ageing, including its impact on the heart, lungs, skeletal muscles, hormones and the brain. Ageing is a complex process modified by disease, physical inactivity and other environmental factors. A reduction in cardiovascular reserve and maximal exercise capacity reflects age- and disease-associated declines in the structure and function of the heart, blood vessels and lungs. This complex situation provides numerous opportunities for intervention and for improving cardiovascular function in elderly people with heart failure.

Demographic changes which are likely to have an impact on heart failure treatment in the future were presented by Chakravarthi Rajkumar (Brighton). The majority of heart failure patients in the future will be women and will be aged over 80 years. Despite this, the average age of patients included in randomised controlled trials of heart failure therapy is only 65 years. Although studies such as SENIORS and PEP-CHF show benefits for, respectively, beta-blockers and angiotensin-converting enzyme (ACE) inhibitors in elderly patients, more evidence is urgently required. In addition, other factors such as nutrition, level of disability, home circumstances, mental health and quality of life, need to be taken into consideration in this elderly population.

The aetiology of heart failure in the elderly is essentially the same as in younger patients; however, there are some subtle differences, according to Theresa McDonagh. The principal difference is that in the elderly, heart failure rarely occurs in isolation and many patients have a large number of co-morbidities, which can have a major impact on treatment and prognosis. The most common difference in pathology between older and younger patients is the greater proportion of elderly patients who have heart failure with preserved systolic function. Hypertension and coronary heart disease are the most common causes of heart failure in the elderly, accounting for between 70–80% of cases. Another important consideration is the many precipitants of decompensation in the elderly, such as the development of arrhythmias, anaemia and renal and thyroid disease.

John Baxter (Geriatrician, Sunderland) gave an overview of the diagnostic challenges in older patients with heart failure. Atypical presentation is more common in elderly patients and this may delay diagnosis. In addition, the European Society of Cardiology (ESC) Guidelines for diagnosing heart failure may be more difficult to apply in elderly patients due to cognitive impairment, and the sedentary lifestyle of many elderly patients may reduce their likelihood of reporting breathlessness. Investigations such as echocardiography are performed less often in elderly patients, diagnostic values for tests such as B-type natriuretic peptide (BNP) may be different in older people, and many co-morbid conditions may make the diagnosis of heart failure more difficult.

Management of heart failure in older patients: what is the evidence?

John McMurray (Glasgow) summarised the evidence available from landmark trials for the treatment of elderly patients with heart failure and left ventricular systolic dysfunction (LVSD). The SENIORS study, which was performed exclusively in the elderly (median age 75 years), gave strong evidence of the efficacy of beta-blockers. Although there is less evidence for ACE inhibitors, a review of data from large randomised controlled trials gave no indication of a difference in efficacy according to age. The CHARM study showed that the absolute benefit of treatment with the angiotensin receptor blocker (ARB) candesartan was much greater in elderly patients, since the event rate was much higher in this population. The evidence for other therapies such as digoxin, spironolactone and cardiac resynchronisation therapy (CRT) is less conclusive. Finally, there is concern that older patients may be treated with lower doses than younger patients, because of a fear of side effects on the part of the health professional, which may reduce treatment efficacy. There are actually limited high-quality data on this subject of tolerability according to age. In CHARM, older patients discontinued both placebo and candesartan more frequently than younger patients; the differential placebo:active therapy discontinuation rate was, however, similar in the different age groups. Treatment should, therefore, be titrated, as tolerated, to evidence-based doses, in all patients, irrespective of age.

Following on from this presentation, John Cleland reported on the evidence for treatment of elderly heart failure patients with preserved systolic function. Trials of digoxin, candesartan and perindopril have all shown some indication of a benefit in this patient population, although none has been conclusive. Partially reported data on nebivolol and propranolol suggest that beta-blockers may also be of benefit. The results of two ongoing trials, I-PRESERVE with irbesartan and TOPCAT with spironolactone, are awaited. It was concluded that the treatment of heart failure with preserved systolic function, especially in the presence of raised BNP levels, is similar to the treatment of heart failure with LVSD, and there are now sufficient data to inform the development of treatment guidelines for heart failure with preserved systolic function.

Valve disease is common in elderly heart failure patients, although it is not always linked to aetiology. Issues surrounding the management of older patients with heart failure and valve disease were presented by Mark Cheesman (Geriatrician, Bristol). Echocardiography is essential for the detection of valve abnormalities in these patients; however, since elderly patients rarely undergo valve surgery this investigation is often neglected. Appropriate medical treatment of aortic stenosis and mitral regurgitation can be beneficial in patients who are unfit for surgery. Minimal access surgery, which is currently undergoing evaluation in early-stage trials, may offer considerable benefits to elderly patients with severe mitral regurgitation or aortic stenosis in the future.

Coping with co-morbidity

The therapeutic and prognostic impact of non-cardiac co-morbidities, which are common in elderly heart failure patients (**Table 1**), was presented by Marion McMurdo (Geriatrician, Dundee). Co-morbidity is associated with a high level of prescribing, which is in turn associated with an

Table 1. Non-cardiac co-morbidities in older patients with chronic heart failure. Adapted from Braunstein JB et al. Noncardiac comorbidity increases preventable hospitalizations and mortality among Medicare beneficiaries with chronic heart failure. *J Am Coll Cardiol* 2003;42:1226-33, with permission from The American College of Cardiology Foundation.

- 26% chronic obstructive pulmonary disease/ bronchiectasis
- 16% osteoarthritis
- 14% lower respiratory disease
- 14% thyroid disease
- 11% anxiety/depression
- 9% Alzheimer's disease or other dementia
- 7% chronic renal failure
- 5% asthma
- 5% osteoporosis

increased risk of adverse events. Co-morbidity also tends to lead to under treatment with medications due to safety concerns associated with the administration of multiple therapies. Prescribing in these patients should be aimed at avoiding adverse events and drug interactions, and maximising compliance. The exclusion of elderly patients from heart failure trials makes it very difficult to be sure about how to treat them effectively. Improved management of non-cardiac co-morbidity is also an important issue. In the absence of evidence, prescribing should be guided by individual assessment and through close liaison between cardiologists and geriatricians.

Three illustrative cases on the management of heart failure patients with failing renal function, impaired lung function and those failing generally were presented.

Failing kidneys: Philip Kalra, a nephrologist from Manchester, gave a presentation on the management of patients with heart failure and renal disease. There is a strong association between the heart and the kidneys, and changes in cardiac function have a marked impact on renal function and outcome. Renal impairment has been shown to have an adverse effect on survival in heart failure patients. A large number (up to 33% in one small study) of elderly patients with heart failure may also have atherosclerotic renovascular disease, which may have an impact on the effective use of ACE inhibitors and ARBs in these patients. It was suggested that outcome in patients who have both heart failure and renal artery stenosis may be improved by selective renal revascularisation.

Failing lungs: The problems associated with the management of patients with heart failure and impaired lung function, were presented by Sundeep Puri (Manchester). It was suggested that approximately 20% of patients with chronic obstructive pulmonary disease (COPD) may also have undiagnosed heart failure and are consequently not receiving appropriate medical therapy. Physicians are often reluctant to prescribe beta-blockers in heart failure patients with either COPD or asthma. Although there are few studies of the use of beta-blockers in patients with COPD and heart failure, evidence was presented suggesting that cardioselective beta-blockers are safe to use in these patients. However, in patients with true asthma, the use of beta-blockers remains controversial and requires caution.

Failing generally: The management of patients considered to be "failing generally" was presented by Andrew Elder, a Geriatrician from Edinburgh. The importance of using a comprehensive, multidisciplinary, approach for the assessment of elderly patients with heart failure and multiple co-morbidities was discussed. In addition to physical and psychiatric problems, frailty is also an important consideration in these patients. The correction of small problems identified during assessment, which may have a major impact on quality of life and function, is important. The management plan should take into account the specific needs of the individual patient. Prescribing additional therapies or up-titration to target doses in accordance with treatment guidelines may not be appropriate or desirable in these patients. Reviewing patient's charts in order to identify unnecessary and inappropriate prescriptions is an important but neglected aspect of good clinical practice.

Heart failure rehabilitation: Should we? Dare we? How to?

Bernie Downey (Belfast) gave a report from the British Association of Cardiac Rehabilitation (BACR)/BSH heart failure rehabilitation group, which held its first meeting earlier this year. The purpose of the group is to review and advise the BACR, BSH and British Heart Foundation on issues relating to cardiac rehabilitation, including rehabilitation practice, clinical guidelines, audit, research, professional competency and education needs. It also aims to improve communication and collaboration between cardiac rehabilitation and heart failure professionals, and to develop professional education and training needs. An update paper is due to be published in 2007.

There is little evidence on the safety of cardiac rehabilitation in heart failure according to Martin Cowie (London). Although many of the European and American Guidelines refer to the use of cardiac rehabilitation in heart failure patients, specific recommendations and guidance on risk stratification are minimal. A Healthcare Commission survey performed in 2003 showed that only 35% of Trusts offer rehabilitation services to patients with heart failure (**Figure 1**), and little progress has been made since. It would seem that rehabilitation, particularly for heart failure patients, is not a priority area at present. Further research is required to provide evidence that such intervention is appropriate and should be funded.

Trials of exercise-based cardiac rehabilitation reported to date show beneficial effects on exercise capacity and quality of life in selected heart failure patients; however, whether exercise-based cardiac rehabilitation has a beneficial effect on morbidity and mortality in these patients remains to be fully established. A meta-analysis of exercise training trials showed no evidence that properly supervised medical training programmes increase the risk of death in patients with chronic heart failure, and there is some evidence of a reduction in mortality.¹ Although exercise training is undoubtedly beneficial in some patients, Rod Taylor (Exeter) stated that more good 'real-world' trials are required. Translating the observed benefits of cardiac rehabilitation into daily clinical practice remains somewhat problematic. Most trials have been performed in younger patients with less severe symptoms. In addition, since different trials have used different types and durations of exercise therapy, the definition of the optimal therapy and "dose" remains unclear.

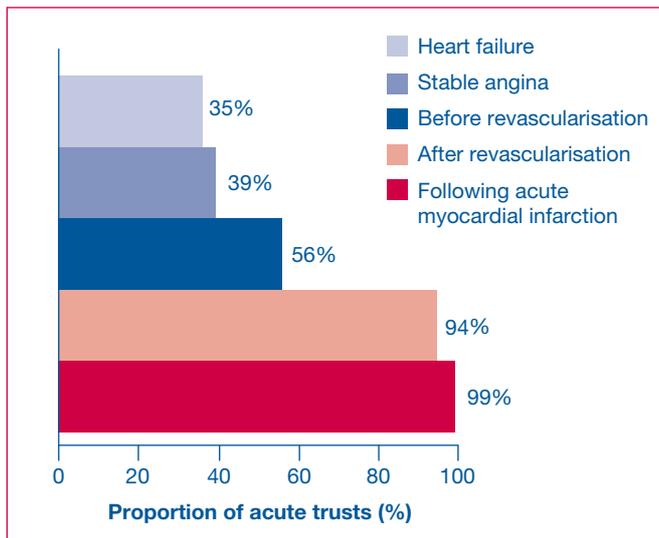


Figure 1. Proportion of NHS trusts offering rehabilitation services to different groups of patients. Reproduced from the Health Commission Survey of Acute Trusts, April 2003. (c) 2007 Commission for Healthcare Audit and Inspection.

A previously published randomised controlled trial of cardiac rehabilitation in 200 elderly heart failure patients showed that, compared with standard care, patients receiving cardiac rehabilitation had improved outcomes in terms of functional status, quality of life and reduced healthcare utilisation at 6 months.² Follow-up data from the 112 patients who were still alive at 5 years were presented at the meeting by Jacky Austin (Abergavenny). It was reported that the effects of the 24-week cardiac rehabilitation programme had only a limited impact on outcome at 5 years, with an indication of improved survival and reduced time in hospital for patients in the rehabilitation group.

In 2003, the BSH decided to adopt a national database project, and several meetings were held to decide on the format that this would take. In 2006, the Healthcare Commission agreed to fund a pilot project and, shortly after, a web-based database (hFAB, the heart Failure database for Britain) was designed by the Central Cardiac Audit Database (CCAD). An update on the current status of the BSH national database project was given by Henry Dargie (Glasgow), which included examples of the web pages used and the type of data recorded. The project is currently undergoing pilot trials in 11 hospitals and it is hoped that data will be available for presentation at the next BSH meeting.

Failure to recognise heart failure

A perspective on the problems associated with diagnosing heart failure in primary care was presented by Nigel Rowell from Middlesbrough. Symptoms such as breathlessness and ankle swelling are very common in general practice; however, only a small proportion of patients presenting with these symptoms actually have heart failure. The key clinical features (such as previous myocardial infarction [MI], raised jugular venous pressure, abnormal echocardiogram [ECG]) and investigations (chest X-ray, ECG, BNP and echo) which are most helpful for GPs when making a diagnosis of heart failure were summarised.

This was followed by a review of the hospital perspective on the difficulties associated with diagnosing heart failure, presented by Martin Cowie. The key obstacle to progress in

achieving the national standards for patient care is that patients do not have access to the appropriate expertise at the appropriate time, either because the skills and technology are not available or because they are not accessible. The key factors to achieving progress include an ability to identify the problems, specifically access to echocardiography, drug titration, education and communication. In addition, the need for good evidence-based treatment, local ownership, frequent review of progress, a multidisciplinary approach to therapy and patient/carer involvement in all stages of treatment planning, were also identified as important issues.

The results of a small study to compare the ability of natriuretic peptides and echocardiography to identify patients with LVSD were presented by Kevin Goode from Kingston-upon-Hull. The study, which was performed in 80 patients with current or suspected LVSD, found that echocardiography often underestimated ejection fraction, compared with magnetic resonance imaging (MRI), leading to over-diagnosis. Using a combination of N-terminal proBNP (NT-proBNP) followed by echocardiography the number of false-positive diagnoses of LVSD was reduced compared with MRI. This suggested that a diagnosis of LVSD, in the absence of MRI, should be a two-key approach. Although a diagnostic threshold for NT-proBNP of 14.8 pmol/l (125 pg/ml) was used in this study, cut-off thresholds would need to be adjusted in some patient groups, such as the elderly, females and patients with renal dysfunction.

In a presentation on the barriers to implementation of new technologies within the NHS, Tom Quinn (Coventry) reported that the UK is slow to adopt new technologies and has much lower expenditure in this area compared with other countries. However, the adoption of technologies before efficacy has been conclusively demonstrated, may waste resources and harm patients. Technologies that are easy to use and which are applicable to large numbers of patients are more likely to be adopted quickly and without evidence. Introduction of new technologies must be based on an assessment of cost-effectiveness; however, a policy aimed at achieving the lowest price is at odds with the implementation of the newest technologies. It was concluded that in order to achieve better value healthcare we require more high-value interventions and fewer low-value interventions.

Cardiac resynchronisation therapy: some answers, more questions

The recently reported CARE-HF study demonstrated a large beneficial effect of CRT in patients with heart failure.³ However, is it possible to identify those patients who are most likely to respond to CRT? In a review of the principal data from CARE-HF, John Cleland showed that no measured baseline variable accurately predicted the ability of CRT to reduce morbidity and mortality. In particular, there was no evidence that the severity of symptoms, ischaemic heart disease as a cause of left ventricular dysfunction or the severity of inter-ventricular dyssynchrony had a substantial influence on the effects of CRT. This may reflect problems with optimising the delivery of CRT, the presence or development of co-morbid conditions or the inability to know how and, perhaps more importantly, when to measure dyssynchrony. Dyssynchrony may evolve over time and may be present only when standing or during exertion. Variations

in the myocardial substrate may explain only a small part of the response to CRT. However, it was concluded that trying to identify patients as responders or non-responders to CRT may be inappropriate.

However, according to Rakesh Sharma (London), approximately 30% of patients in clinical trials do not appear to benefit from CRT and this figure is probably higher in routine clinical practice. In view of the potential complications and cost associated with CRT, it is important to try to identify non-responders and to modify therapy in an attempt to improve outcome. Management options in these patients include: reduction in diuretic dosage if appropriate, re-initiation of beta-blocker therapy and up-titration of ACE inhibitor dosage. Interrogation of the CRT device in order to optimise the settings for an individual patient can also be beneficial, although this can be time consuming and requires a multidisciplinary approach. Other issues include appropriate positioning of the left ventricular lead, inappropriate selection of patients for CRT and the presence of cardiac ischaemia.

The issues surrounding the decision to implant a CRT device alone or a CRT plus a defibrillator (CRT-D) were discussed by Peter Cowburn (Southampton). The principal issue is one of cost, as devices with a defibrillator are considerably more expensive. CRT reduces heart failure death and bradycardic death; CRT-D offers additional protection from tachyarrhythmic death. However, it is not proven that CRT-D exerts a greater effect on mortality than CRT alone, but CRT-D is associated with a higher risk of complications and the possibility of inappropriate shocks. It was suggested that CRT-D should be used in patients with New York Heart Association (NYHA) functional class III heart failure (ejection fraction $\leq 30\%$ and QRS ≥ 130 ms) receiving optimal therapy, who have good quality of life and life expectancy. In addition, CRT-D should be used in patients with prior ventricular tachyarrhythmia or syncope and criteria for CRT, and those with NYHA class IV heart failure as a bridge to transplant. With advancing age and increasing co-morbidities, implantation of a CRT-D may not be appropriate. However, more research and guidance in this area are needed to assist in the decision-making process.

Hot topics in heart failure

In the final session of the meeting, John Cleland gave an overview of the results of several studies relevant to the treatment and diagnosis of heart failure, which were presented at the American Heart Association Meeting held in Chicago in 2006.⁴

OAT: It is possible that opening occluded arteries following an MI will reduce adverse left ventricular remodelling and thus delay or prevent the onset of heart failure or death. The OAT trial was designed to evaluate whether a strategy of percutaneous coronary intervention (PCI) was superior to conservative medical management in stable, high-risk patients with persistent total occlusion of the infarct-related artery following an MI. However, results from 2166 patients failed to show a benefit of PCI over optimal medical therapy. Two studies, HEART-UK and STICH, which aim to evaluate revascularisation in heart failure, are currently ongoing.

MAGIC: This placebo-controlled study to evaluate the myocardial implantation of skeletal myoblasts in patients referred for coronary artery bypass graft surgery was stopped early due to poor recruitment. Data from 97 patients reported no improvement in the contraction of

dysfunctional segments or in left ventricular ejection fraction; however, some beneficial effects on left ventricular volumes were observed. Long-term follow-up to investigate a possible effect on ventricular remodelling is ongoing.

PABA-CHF: Atrial fibrillation is relatively common in heart failure patients and is associated with poor prognosis. In the PABA-CHF study, two relatively new methods for controlling sinus rhythm, pulmonary vein isolation (PVI) and atrioventricular node ablation with biventricular pacing were evaluated in 81 patients. Results greatly favoured PVI; however, in view of the open design of this study these results should be treated with some caution. Definitive studies with more robust endpoints are now required.

SALT 1 & 2: In the SALT 1 and 2 studies, which were not performed exclusively in heart failure, the arginine vasopressin antagonist tolvaptan was shown to correct hyponatraemia, which is a predictor of worse outcome in heart failure. The previously reported ACTIV-in-CHF trial suggested that tolvaptan administered in addition to standard therapy may be effective for the management of heart failure patients hospitalised with systemic congestion. The EVEREST study, to evaluate the effect of tolvaptan on morbidity and mortality in patients with heart failure, is due to be reported at the American College of Cardiology meeting in 2007.

Anaemia: Anaemia is common in heart failure: a review of studies to assess the prevalence of anaemia in heart failure outpatients reported an incidence of between 10% and 33%. It was suggested that the incidence is probably even greater in patients admitted with worsening heart failure. Data showing an association between low haemoglobin levels and mortality in the COMET study were presented.⁵ Erythropoiesis-stimulating proteins such as darbepoetin alfa have shown encouraging results in early studies in heart failure. A large-scale randomised placebo-controlled trial (RED-HF) to evaluate the effects of darbepoetin alfa on morbidity and mortality in 3400 heart failure patients is currently ongoing.

ABCD: Implantable cardiac defibrillators (ICDs) reduce the risk of arrhythmic death in patients with chronic heart failure; however the annual absolute benefit on all-cause mortality is about 2%. A test that could identify patients in whom the risks of ICD therapy outweigh the benefits would facilitate more effective selection of patients for defibrillator therapy. ABCD was an observational study designed to show that non-invasive testing with microvolt T-wave alternans during a treadmill exercise test was not inferior to a conventional invasive electrophysiological study to predict ventricular tachyarrhythmic events in patients prior to implantation of a cardiac defibrillator. Results suggested that the two strategies were comparable, although the practical value of either test is uncertain and there were a number of flaws in the study design.

PEP-CHF: Although approximately 50% of patients discharged from hospital with a diagnosis of heart failure have preserved left ventricular systolic function, there have been few substantial randomised controlled trials of therapy in these patients. The PEP-CHF study was designed to evaluate the use of perindopril versus placebo in a population of elderly patients with diastolic dysfunction. Recruitment was terminated at 850 patients due to the high number of treatment crossovers. The results, which suggest that perindopril improves symptoms and functional capacity and may reduce heart failure hospitalisations, have recently been published.⁶

IMPROVE-CHF: Results of the IMPROVE-CHF study to assess the value of NT-proBNP for improving the diagnosis and management of patients presenting at the emergency department with acute breathlessness and suspected decompensated heart failure were presented by Andrew Clark (Kingston-upon-Hull). This double-blind study randomised 501 patients to either usual care or treatment guided according to the results of a NT-proBNP test. The NT-proBNP-guided treatment strategy reduced the cost of patient care, principally due to a reduction in the rate of rehospitalisation. However, there were some possible issues relating to completeness of the data, since each of the centres recruited only five patients per month, which is very low compared with the 60 patients per month recruited into the EuroHeart Failure study.

UNLOAD: Fluid retention is a common problem in heart failure and often leads to hospitalisation. As diuretic therapy may not always be effective for treating fluid overload in these patients, an alternative strategy is to remove the fluid mechanically, using ultrafiltration. The UNLOAD study randomised 200 heart failure patients hospitalised with volume overload to either ultrafiltration or intravenous diuretic therapy. Fluid loss at 48 hours was greater in the ultrafiltration group; however, there was no difference in dyspnoea scores. Data collected 90 days after discharge showed a reduction in rehospitalisation, number of days in hospital and number of unscheduled hospital visits, following ultrafiltration. Dr Clark also gave an overview of his own clinical experience with this therapy. Further research is now required to establish the role of ultrafiltration in routine clinical practice.

References

1. Piepoli MF, Davos C, Francis DP, Coats AJ, ExTraMATCH collaborative. Exercise training meta-analysis of trials in patients with chronic heart failure (ExTraMATCH). *BMJ* 2004;328:189.
2. Austin J, Williams R, Ross L, Moseley L, Hutchinson S. Randomised controlled trial of cardiac rehabilitation in elderly patients with heart failure. *Eur J Heart Fail* 2005;7:411-17.
3. Cleland JG, Daubert JC, Erdmann E *et al*. The effect of cardiac resynchronization on morbidity and mortality in heart failure. *N Engl J Med* 2005;352:1539-49.
4. Cleland JGF, Coletta AP, Abdellah AT *et al*. Clinical trials update from the American Heart Association 2006: OAT, SALT 1 & 2, MAGIC, ABCD, PABA-CHF, IMPROVE-CHF, and percutaneous mitral annuloplasty. *Eur J Heart Fail* 2007;9:92-7.
5. Komajda M, Anker SD, Charlesworth A *et al*. The impact of new onset anaemia on morbidity and mortality in chronic heart failure: results from COMET. *Eur Heart J* 2006;27:1440-6.
6. Cleland JGF, Tendera M, Adamus J *et al.*, on behalf of the PEP-CHF investigators. The perindopril in elderly people with chronic heart failure (PEP-CHF) study. *Eur Heart J* 2006;27:2338-45.

Definition of acronyms

ABCD	The alternans before cardioverter defibrillator trial
ACTIV in CHF	Acute and chronic therapeutic impact of a vasopressin antagonist in congestive heart failure
CARE-HF	Cardiac resynchronization in heart failure
CHARM	Candesartan in heart failure assessment of reduction in mortality and morbidity
COMET	Carvedilol or metoprolol European trial
EVEREST	Efficacy of vasopressin antagonism in heart failure outcome study with tolvaptan
HEART-UK	Heart failure revascularisation trial
IMPROVE-CHF	Improved management of patients with congestive heart failure
I-PRESERVE	Irbesartan in heart failure with preserved systolic function
MAGIC	Myoblast autologous grafting in ischemic cardiomyopathy trial
OAT	Occluded artery trial
PABA-CHF	Pulmonary vein antrum isolation vs. AV node ablation with bi-ventricular pacing for treatment of atrial fibrillation in patients with congestive heart failure
PEP-CHF	Perindopril in elderly people with chronic heart failure study
RED-HF	Reduction of events with darbepoetin alfa in heart failure trial
SALT	Study of ascending levels of tolvaptan in hyponatremia
SENIORS	Study of effects of nebivolol intervention on outcomes and rehospitalisation in seniors with heart failure
STICH	Surgical treatment for ischaemic heart failure
TOPCAT	Trial of aldosterone antagonist therapy in adults with preserved ejection fraction congestive heart failure
UNLOAD	Ultrafiltration versus intravenous diuretics for patients hospitalised for acute decompensated heart failure

Acknowledgements

The BSH is grateful to: A. Menarini Pharma, Arrhythmia Alliance, Bayer Healthcare, Berlin Heart, Boston Scientific, British Geriatric Society Cardiovascular Section, ExtraLife, INCA-Pharm, Medtronic, Pfizer, Philips, ResMed, Response Medical, Roche Diagnostics, Servier and Takeda for their contributions towards this meeting, and to the '**Friends of BSH**': **A. Menarini Pharma, Boston Scientific** (formerly Guidant), **ExtraLife, INCA-Pharm, Medtronic, Pfizer, Servier, Siemens Medical Healthcare Diagnostics** (formerly Bayer Healthcare), and **Takeda** for their continuing support.

Becoming a Member or a Friend of the BSH

Membership is open to anyone involved in the diagnosis, management or science of HF. If you are interested in becoming a Member or Friend of the BSH, please contact:

Rose-Marie Wilkinson/Michelle Glanville
BSH Secretariat
'Nought' The Farthings, Marcham, Oxfordshire, OX13 6QD, UK
T: 01993 846 475 or 01865 391215
E: info@bsh.org.uk Website: www.bsh.org.uk