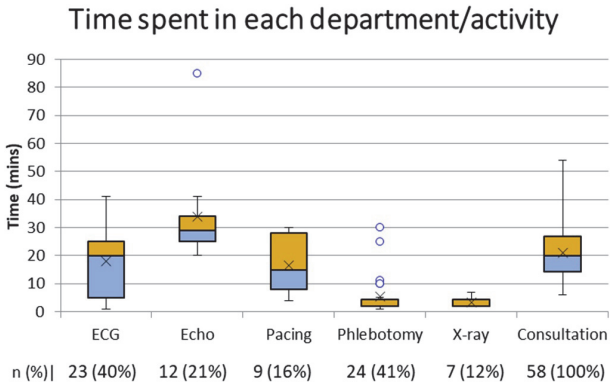
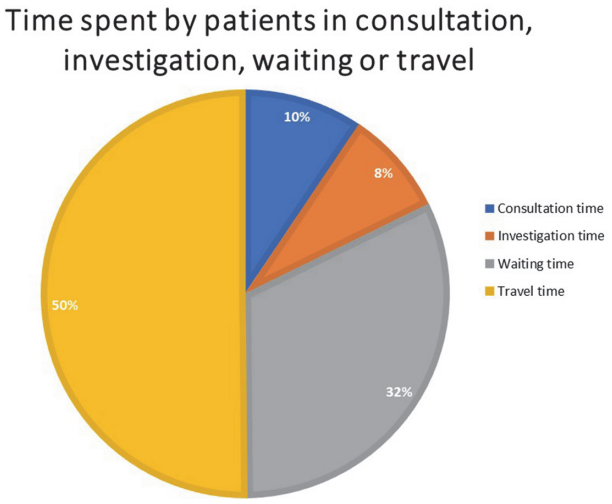


Abstract 141 Figure 1



Abstract 141 Figure 2

with 41% and 40% of appointments respectively. A median of 8 minutes was spent by clinicians between patients. Patients' median total waiting time, i.e. time spent in hospital by patients outside of consultations and tests, was 64.5 minutes (IQR 31.75 – 94.5). New patients had longer consultations on average, with a median of 28.5 minutes (IQR 21.5 – 37) compared with 18.5 minutes for follow-up appointments (IQR 13 – 24) (p = 0.018) and spent longer in hospital than follow-up patients (median time 150.5 minutes vs 101 minutes, p = 0.040).Estimated travel times were a median of 45 minutes in each direction (IQR 29 – 87), and therefore a median of 90 minutes for a round trip. The estimated combination of travel time and time spent in hospital was a median of 190 minutes (IQR 149 – 283). Figure 2 illustrates the breakdown of total patient time spent in consultation, investigation, waiting or in travel.

Conclusion Most clinic appointments were delayed. Most patient time was spent in travel and waiting between activities on the day of a HF clinic appointment. There is huge scope for improvement in clinic efficiency and patient convenience by rationalisation of clinic services and increased use of telemedicine in HF.

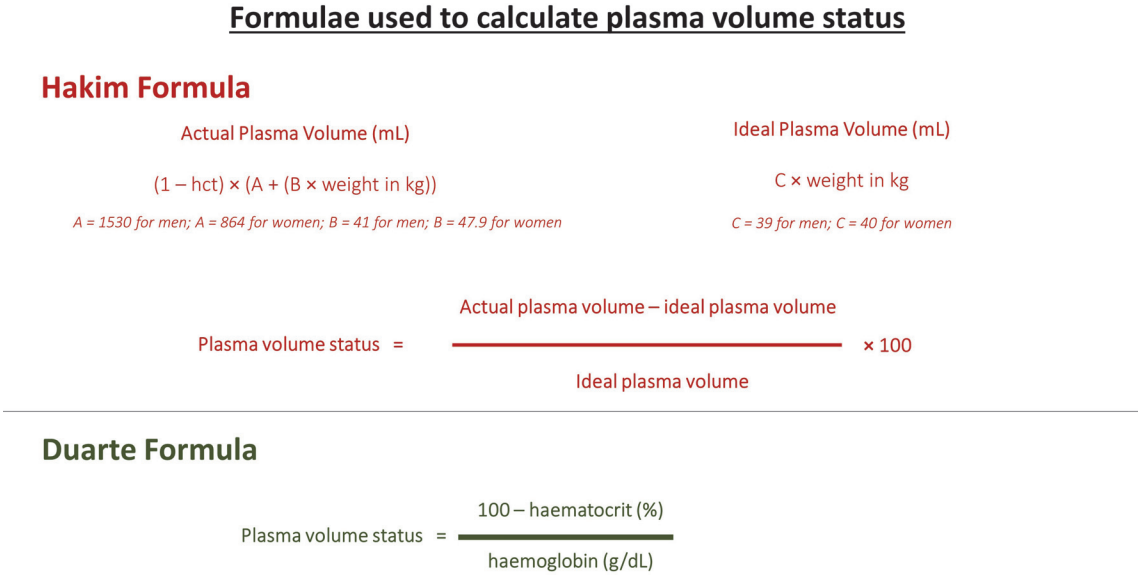
Conflict of Interest Dr Singhal's salary is funded by a fellowship from Abbott

142 ESTIMATIONS OF PLASMA VOLUME STATUS IN PATIENTS WITH CHRONIC HEART FAILURE: A USEFUL TOOL FOR DIAGNOSING AND TREATING CONGESTION?

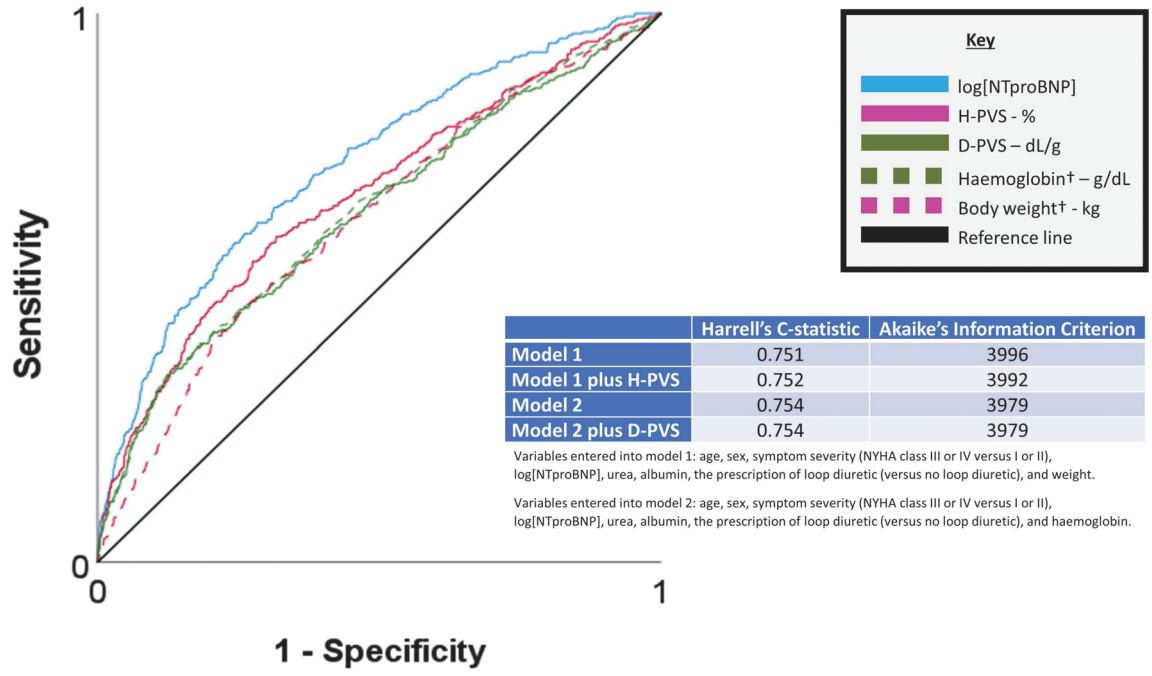
Joe Cuthbert. *Hull University Teaching Hospitals NHS Trust, Hull, UK*

10.1136/heartjnl-2021-BCS.139

Introduction Neurohormonal activation in patients with chronic heart failure (CHF) causes plasma volume expansion which, if untreated, leads to overt venous congestion. Plasma volume status (PVS) can be estimated using formulae based on a patient's sex, weight, haemoglobin and haematocrit. Such non-invasive methods to assess congestion may be useful, particularly in the wake of the COVID-19 pandemic. We compared the clinical value of two measures of PVS in a cohort of unselected outpatients with CHF (The Hull LifeLab).



Abstract 142 Figure 1



	Harrell's C-statistic	Akaike's Information Criterion
Model 1	0.751	3996
Model 1 plus H-PVS	0.752	3992
Model 2	0.754	3979
Model 2 plus D-PVS	0.754	3979

Variables entered into model 1: age, sex, symptom severity (NYHA class III or IV versus I or II), log[NTproBNP], urea, albumin, the prescription of loop diuretic (versus no loop diuretic), and weight.

Variables entered into model 2: age, sex, symptom severity (NYHA class III or IV versus I or II), log[NTproBNP], urea, albumin, the prescription of loop diuretic (versus no loop diuretic), and haemoglobin.

Abstract 142 Figure 2

Abstract 142 Table 1 Patient characteristics by quartile of D-PVS

Variable	Quartile 1 N=876	Quartile 2 N=876	Quartile 3 N=876	Quartile 4 N=876	P
Body weight – kg	86 (±19)	82 (±19)	77 (±19)	75 (±18)	<0.001
NTproBNP – ng/L	830 (332-1807)	841 (321-1899)	1065 (401-2526)	1742 (701-4064)	<0.001
NYHA class III or IV – %	22%	25%	30%	38%	<0.001
Lung crackles O/E - %	13%	13%	18%	22%	<0.001
Peripheral oedema O/E - %	33%	34%	42%	52%	<0.001
Raised JVP O/E - %	12%	14%	14%	23%	<0.001
1 year mortality† - %	7%	8%	10%	18%	<0.001

Legend
† - amongst those with at least 1 year follow up (N=3330; 95% of total population)
Abbreviations used: D-PVS - Plasma volume status calculated using the Duarte formula; NTproBNP - N-terminal pro-B-type natriuretic peptide; NYHA - New York Heart Association; O/E - on examination.

Abstract 142 Table 2 Patient characteristics by quartile of H-PVS

Variable	Quartile 1 N=876	Quartile 2 N=876	Quartile 3 N=876	Quartile 4 N=876	P
Body weight – kg	97 (±19)	83 (±15)	75 (±14)	65 (±13)	<0.001
NTproBNP – ng/L	724 (292-1486)	817 (322-1859)	1116 (434-2717)	2043 (805-4812)	<0.001
NYHA class III or IV – %	27%	24%	31%	34%	<0.001
Lung crackles O/E - %	14%	12%	18%	22%	<0.001
Peripheral oedema O/E - %	41%	38%	39%	43%	0.18
Raised JVP O/E - %	13%	14%	16%	20%	<0.001
1 year mortality† - %	7%	8%	10%	18%	<0.001

Legend
† - amongst those with at least 1 year follow up (N=3330; 95% of total population)
Abbreviations used: H-PVS - Plasma volume status calculated using the Hakim formula; NTproBNP - N-terminal pro-B-type natriuretic peptide; NYHA - New York Heart Association; O/E - on examination.

Methods Patients with an echocardiogram, N-terminal pro B-type natriuretic peptide (NTproBNP) and complete data on signs and symptoms were evaluated (n=3505). CHF was defined as signs and symptoms of the disease and either left ventricular systolic dysfunction (LVSD) worse than mild, or LVSD mild or better and raised N-terminal pro-B-type natriuretic peptide (NTproBNP) levels (>125 ng/L). Two formulae to estimate PVS were used: (a) Hakim formula (based on estimations of actual and ideal plasma volume calculated from weight and haemoglobin - H-PVS); and (b) Duarte formula (calculated from haematocrit and haemoglobin – D-PVS) (figure 1). Patients were split into quartiles of H-PVS and D-PVS. Variance inflation factor (VIF) was used to assess co-linearity between both measures and other variables. Outcome measures were all cause mortality, and mortality or heart failure hospitalisation. Multivariable Cox regression, Harrel's C-statistic and Akaike's Information Criterion (AIC) were used to assess the prognostic utility of each measure of PVS.

Results Patients in the highest quartile (most congested) of D-PVS or H-PVS had higher NTproBNP levels, were more likely to have severe symptoms and signs, and be prescribed a loop diuretic than those in lower quartiles (table 1 and 2). Patients in the highest quartile paradoxically weighed much less than those in those lowest quartiles. H-PVS and D-PVS were strongly correlated with one another (r=0.79; P<0.001) but had only modest positive correlations with log[NTproBNP]

(r=0.32 and r=0.24 respectively; P<0.001). There was extreme co-linearity between D-PVS and haemoglobin in linear regression models with other continuous variables (VIF = 14). Higher H-PVS (hazard ratio (HR) = 1.01 (95% confidence interval (CI) = 1.00 – 1.02); P=0.002) or D-PVS (HR = 1.08 (95% CI = 1.03 – 1.14); P=0.002) was associated with greater risk of all-cause mortality or hospitalisation with heart failure. Neither the Harrel's C-statistic nor AIC of outcome models for 1 year mortality including either weight or haemoglobin were improved by the addition of H-PVS or D-PVS (figure 2).

Conclusions Changes in weight or haemoglobin in patients with CHF are not always due to changes in plasma volume. Despite apparent associations with disease severity, H-PVS and D-PVS are just surrogates of the variables from which they are calculated and not reliable measures of congestion. It is likely neither has any clinical utility.

Conflict of Interest None

143 A SINGLE CENTRE STUDY ASSESSING THE EFFECTIVENESS OF ACTIVE MONITORING, USING TELEMEDICINE, IN PREVENTING HEART FAILURE ADMISSIONS AND DEATH IN A PRIMARY CARE POPULATION WITH SYSTOLIC HEART FAILURE

[1]Nicola Bowers, [1]Josephine Chaplin, [1]Piers Clifford, [1]Ben Lodge, [1]Charlie Clifford, [2]Ricardo Pio Monti, [3]Marc Phippin. *[1]Buckinghamshire Healthcare NHS Trust, Buckinghamshire, UK; [2]University College; [3]Janssen Healthcare Innovation*

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Introduction Patients with systolic heart failure are at high risk of admission to hospital and death. This can be reduced by ensuring that they are receiving all evidence-based heart failure medications and by detecting early signs of deterioration in their condition.

Methods Patients were enrolled from 2016 through 2017 at 12 GP practices across Buckinghamshire. Practices were selected if the used EMIS web as their electronic patient record and showed enthusiasm for participating in the study. At each practice, a senior heart failure nurse was deployed to identify patients with a REED code for heart failure and an echocardiographically determined ejection fraction (EF) of less than 40%. If no echocardiogram was available this was arranged. We recruited 209 primary care patients with echocardiographically proven left ventricular systolic dysfunction (ejection fraction<40%). 84 patients consented to be actively monitored by the heart failure team using telemedicine. It automatically uploaded any relevant data (weight, dyspnoea class, renal function, full blood count, urate, chest X-ray, repeat echocardiogram, hospital admissions, death) entered in the GP or hospital records. Patients were also encouraged to enter their own data (in particular weight and exercise tolerance). Clinicians were instructed to treat patients in accordance with national guidelines for the management of heart failure. 125 patients consented to receiving usual care but allowing access to their medical records. The primary endpoint was cardiovascular death or admission to hospital for heart failure at 1 year. Secondary end-points included the prescription of evidence-based heart failure medications and patient satisfaction at the end of the study.

Results There was no difference in the mortality rate between the groups (6.02% in the active group and 5.56% in control). There was a significant difference in hospital admission (10.84% in the active group and 1.59% in control; p-value of 0.0078). At the end of the study, in the active group v control group, 92% v 52% of patients were on a beta-blocker, 92% v 48% on ACE-I/ARB, and 60% v 30% on an MRA. There were no differences in the final doses achieved.

Conclusions Active telemonitoring in an elderly population with systolic heart failure did not reduce cardiovascular mortality or admission to hospital for heart failure over the 1 year of the study. It did result in more patients receiving evidence-based heart failure medications. Overall satisfaction with active monitoring delivery a questionnaire was provided to all patients who opted to receive active monitoring. The purpose of the questionnaire was to determine overall satisfaction levels with the monitoring and identify areas for potential improvement. A questionnaire was circulated at the midpoint of the study (6 months) as well as at its conclusion (12 months). Of all patients in the active control group, a total of 27 completed both questionnaires (corresponding to 32.53% of all patients under active monitoring). The characteristics of this subset of the active cohort were consistent with the overall characteristics of all patients in the study; there was no significant differences in cardiovascular status (e.g., NYHA scores) or personal characteristics (e.g., gender, age).

The questionnaire consisted of a eleven questions measuring the patient satisfaction on various aspects of the active monitoring treatment. The overall response from patients was positive, with an average satisfaction of 8.54 / 10. Furthermore, when asked how likely they would be recommend the active monitoring treatment, patients gave an average score of 8.34 / 10.

Conflict of Interest None

144 SIDE EFFECTS OF SACUBITRIL/VALSARTAN INFLUENCE OUTCOMES IN HEART FAILURE POPULATIONS: A RETROSPECTIVE STUDY

Sheethal Kumar*, Hejie He, Hesham Aggour, Thomas Lachlan, Faizel Osman, Michael Kuehl. *UHCW NHS Trust, Coventry, UK*

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Introduction Sacubitril/Valsartan (SV) is an effective treatment for patients with heart failure and reduced ejection fraction (HFrEF), decreasing hospitalisation and reducing the overall the risk of cardiovascular death.[1] In the PARADIGM study a higher rate of hypotension and nonserious angioedema was found in the SV vs enalapril arm, but a lower incidence of renal impairment, hyperkalaemia and cough. Until now, there is little data on tolerance of SV outside this clinical trial as well as the consequence of the discontinuation of this therapy. We therefore analysed the side effects of SV in a real-world practice and investigated the outcomes of stopping SV.

Methods We conducted a retrospective analysis of consecutive patients with heart failure and reduced ejection fraction who were started on SV at University Hospitals Coventry and Warwickshire NHS Trust between March 2017 and July 2020. All