Aims and Outcomes To improve inpatient management of Congestive Cardiac Failure. By July 2016 at Queen's Hospital and King George Hospital, we should obtain 50% in:

1. Optimising fluid management (weight loss)
2. Up-titrating therapy to maximum prognostic benefit

Methods 2 PDSA (Plan-Do-Study-Act) cycles were completed trust-wide project at BHR Hospitals "Queens" and KGH Coronary Care Units (Figure 1):

In PDSA Cycle 1, a two-week based proforma was trialled and compatibility was checked with daily ward round and CCF management. In PDSA Cycle 2, it was changed to a 7 days based proforma with an additional aspect on renal function (figure 2 see below). The new proforma was used, analysed and edited for each PDSA cycle. Patient parameters were derived and confirmed from Solus and Cyberlab.

Results There was a significant improvement from the new proforma in heart failure monitoring and management. The results are shown in table 1:

Abstract 13 Table 1 PDSA cycle results

	PDSA Cycle 1	PDSA Cycle 2
Number of Patients	n=9	n=10
Mean Age	73.9	70.2
Average Hospital Stay	18.5 days	17.5 days
Optimum Fluid Management (Percentage of Patient's losing weight by Day 7)	60%	100%
Developed Worsening AKI	22%	30%
Developed significant electrolyte imbalance	22%	0%
Up-titrating therapy	22%	100%
Quality of documentation: Daily weights recorded	89%	100%
Quality of documentation: U&Es recorded	55%	100%

There were limitations with unwell patients, especially those who developed AKI secondary to heart failure treatment. With reducing hospital stay, helps reduce costs to the NHS.

Conclusions Heart Failure monitoring and management is important to help reduce morbidity and mortality. There was success from QI project by using the new proforma by improving patient care and co-ordinated care. It will be implemented in the trust on other medical wards like Acute Medicine.

14 ST2 LEVELS ARE ELEVATED IN PATIENTS WITH ADVANCED HEART FAILURE BUT ARE NOT CONSISTENTLY ASSOCIATED WITH OTHER MARKERS OF ADVERSE PROGNOSIS

[1]Hadyn Kankam, [2]Nick Kirk, [2]Sarah Fitzsimons, [2]Stephen Pettit*. [1]*University of Cambridge*; [2]*Papworth Hospital NHS Foundation Trust*

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Introduction Heart transplantation and mechanical circulatory support (MCS) improve survival in selected patients with advanced heart failure and an adverse prognosis. Soluble ST2 is a protein belonging to the interleukin-1 receptor family. ST2 is released in response to cardiomyocyte stess and thought to be a marker of adverse prognosis. We examined the association between ST2 levels and currently accepted markers of adverse prognosis in patients with advanced heart failure.

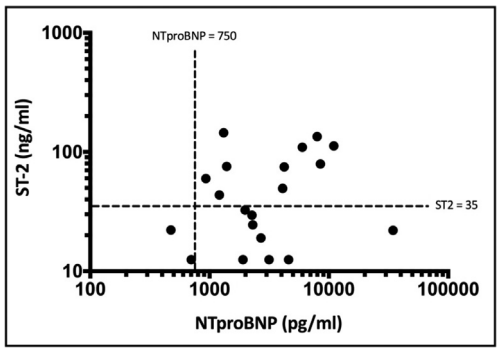
Methods We included 20 consecutive outpatients who were assessed for heart transplantation at Papworth Hospital over ten weeks. All patients underwent echocardiography, six minute walk testing, cardiopulmonary exercise testing and right heart catheterisation, in addition to blood tests including serum ST2 measurement using a commercial assay. Prognosis was estimated using the Seattle Heart Failure Model (SHFM) and the Meta-Analysis Global Group in Chronic Heart Failure (MAGGIC) scores. A multi-disciplinary team decided whether listing for heart transplantation was indicated. We examined the association between ST2 levels and other markers of adverse prognosis.

Results Ten patients were too well to be listed for heart transplantation (group A) and ten patients were sufficiently unwell to be listed for heart transplantation (group B). There was no difference in age, gender or body mass index. Key prognostic variables are presented in table 1. Compared with patients in group A, patients in group B had higher ST2 levels, lower peak VO_2, shorter six minute walk distance and higher SHFM

Abstract 14 Table 1

	Total	Group A (well, *n=10*)	Group B (unwell, *n=10*)	p value
LVEF (%)	17.5 (12.5-52.5)	17.5 (13-35)	20 (12.5-52.5)	0.1700
Serum Creatinine (umol/L)	120 (53-653)	110 (53-175)	140.5 (89-653)	0.6560
NT-proBNP (pg/ml)	2499 (474-34491)	2126.5 (702-4594)	5043.5 (474-34491)	0.6560
ST2 (ng/ml)	54.17±42.91	30.94±22.19	77.19±46.86	0.0110*
Peak VO_2 (ml/kg/min)	15.1±4.7	18.3±3.6	11.8±3.1	0.0004*
6MWT (m)	346.1±103.1	400.2±102.8	292±73.2	0.0143*
Cardiac Index (L/min/m^2)	1.97±0.37	2.01±0.31	1.94±0.44	0.7053
MAGGIC 1-year mortality (%)	14.42±5.73	12.80±5.34	16.04±5.91	0.2130
SHFM 1-year mortality (%)	8.30±5.28	4.90±2.85	11.70±5.01	0.0015*

predicted one-year mortality. However, there was no difference in LVEF, serum Creatinine, NTproBNP, cardiac index or predicted one-year mortality by MAGGIC score. Previous studies have found that an ST2 level of >35 ng/ml is indicative of adverse prognosis. At this cut-off, there was frequent disagreement between ST2 level and other markers of adverse prognosis. Patients identified as high risk by ST2 level were identified as low risk by peak VO_2 (n=5) and six minute walk distance (n=6). In addition, eight patients identified as low risk by ST2 level were identified as high risk by NTproBNP (figure 1).



Abstract 14 Figure 1

Conclusions ST2 levels are higher in patients who are sufficiently unwell to be listed for heart transplantation, compared with those who are too well to be listed for heart transplantation. However, there is frequent disagreement between ST2 levels and other markers of adverse prognosis such as six minute walk distance, peak VO_2 and NTproBNP. Larger studies with assessment of real world outcomes, such as death, urgent heart transplantation or MCS, are required to determine whether ST2 measurement can improve assessment of prognosis in patients with advanced heart failure.

15 METAL-ON-METAL HIP REPLACEMENTS AND SUBCLINICAL EVIDENCE OF MYOCARDIAL DYSFUNCTION

[1]Freya Lodge*, [1]Rabeya Khatun, [1]Alan Fraser, [2]Zaheer Yousef. [1]*Cardiff and Vale University Health Board*; [2]*University of East Anglia*

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Introduction Over 1 million metal-on-metal (MOM) hip replacements were performed between 2003 and 2010. These prostheses were intended to be more durable than previous models, but have been associated with a higher failure rate. There have also been isolated cases of fulminant cardiomyopathy in patients with very high serum cobalt levels. We screened a cohort of asymptomatic patients with these prostheses for subclinical cardiac abnormalities.

Methods All patients with MOM hip replacements at our centre undergo regular follow-up in the orthopaedic clinic with serum cobalt and chromium levels, and periodic magnetic resonance scanning of the affected joint. We recruited consecutive asymptomatic patients to receive echocardiography and recorded demographic data including age, height, weight, serum cobalt and chromium levels, and date of prosthesis implantation. Echocardiographers were blinded to medical history and laboratory results. The cohort was split into quartiles of serum cobalt. ANOVA, Kruksall-Wallis H test and Chi-

Abstract 15 Table 1

	Quartile of Serum Chromium				All Patients	p-value
	Q1	Q2	Q3	Q4		
N	27	28	28	27	110	
Serum Cobalt (Mean ± SD, nmol/L)	10.4 ± 5.3	49.0 ± 25.4	160.2 ± 32.1	410.6 ± 370	156.6 ± 239.4	<0.001
Serum Chromium (Mean ± SD, nmol/L)	17.0 ± 7.2	55.9 ± 43.0	95.5 ± 57.9	213.0 ± 252.4	95.0 ± 147.8	<0.001
Age (Mean ± SD , yrs)	71.3 ± 8.7	70.9 ± 9.6	72.5 ± 9.0	72.6 ± 8.2	71.8 ± 8.8	NS
Males (N, %)	10 (37)	20 (71)	13 (46)	13 (48)	56 (51)	NS
Duration of Implant (Median ± IQR, yrs)	4.4 ± 5.5	7.4 ± 1.4 p=0.001 vs. Q1	7.2 ± 1.6 p=0.033 vs. Q1	7.2 ± 4.6 p=NS	7.1 ± 1.7	0.002
Hypertension (N, %)	13 (48)	16 (57)	13 (46)	15 (56)	57 (52)	NS
Diabetes Mellitus (N, %)	4 (15)	3 (11)	1 (4)	5 (19)	13 (12)	NS
Coronary Artery Disease (N, %)	3 (11)	6 (21)	0 (0)	4 (15)	13 (12)	NS
Atrial fibrillation (N, %)	0 (0)	0 (0)	3 (11)	3 (11)	6 (5)	NS