Stress Protocol

Rest Protocol

Abstract 170 Figure 1

Introduction Identification of myocardial ischaemia & the need for mechanical intervention has increasingly become dependent on measurements of coronary artery flow in terms of FFR, CMR & IMR at invasive coronary angiography & coronary flow reserve (CFR) at CTCA, in addition to anatomy & standard perfusion scanning. CFR measured by PET imaging has been available for some time & has shown additional prognostic value over myocardial perfusion imaging alone. Unfortunately, PET has limited clinical availability. The advent of solid state gamma cameras has increased count sensitivity & temporal resolution. Thus, it is possible to perform measurements of global & regional CFR & myocardial blood flow (MBF) from a dynamic SPECT acquisition. Adding CFR measurements to a SPECT myocardial perfusion scan may be particularly useful for patients with triple vessel disease or suspected microvascular angina (μ VA) with so called 'matched' defects. The measurement requires dynamic imaging with stress & at rest, from the moment of injection of myocardial perfusion tracer – Diagram 1 Detailed tissue kinetic modelling is used to estimate absolute MBF & CFR. The dynamic data is processed using a Leppo net retention model on the GE Alcyone software suite. The Renkin-Crone flow model is used to convert the retention ratio to MBF. CFR is then calculated as the ratio of hyperaemic to rest absolute MBF.

Results Table 1 We have now performed 49 SPECT MPS's with flow measurements, as part of clinical service, on a GE Discovery NM530c scanner. Reason for referral was divided into possible μ VA, ACP & TCP. Of those with possible μ VA, not all had had coronary angiography to support the diagnosis. However, whilst most had normal standard myocardial perfusion scans, half had evidence of abnormal CFR supporting the potential diagnosis in these cases & increasing the identification of potential ischaemia from 20% with standard MPS to 80% with CFR. In patients with ACP, the addition of CFR to standard SPECT MPS, had a lesser impact, increasing the suggestion of ischaemia from 23% to 35%. In patients with TCP, although 60% of previous angiograms had been normal, again the addition of CFR increased identification of potential ischaemia from 23% of patients using standard SPECT MPS, to 72% with CFR assessment.

Conclusions The addition of non-invasive flow assessment to standard SPECT MPS increases the identification of potential ischaemia in patients with potential μ VA or TCP, presumably due to identifying flow reduction in 'matched' ischaemic

Abstract 170 Table 1

Referral Reason	n	ICA / CTCA	Standard SPECT MPS	Flow Assessment
μ VA	10	Normal 8	Normal 8	Normal 5
			Abnormal 2	Abnormal 5
Atypical CP (ACP)	17	Normal 6	Normal 13	Normal 11
		Abnormal 5	Abnormal 4	Abnormal 6
Typical CP (TCP)	22	Normal 12	Normal 17	Normal 6
		Abnormal 8	Abnormal 5	Abnormal 16

defects which may be missed on standard perfusion scanning. However, whilst CFR has less advantages in terms of additional information in patients with ACP, it may increase confidence in the exclusion of ischaemia.

Conflict of Interest none

171

THE ROLE OF ECHOCARDIOGRAPHY IN IMPLANTABLE CARDIAC ELECTRONIC DEVICE INFECTION

¹Alice Cowley, ²Sam Straw, ²James O'Neill, ²Anshuman Sengupta, ²Wazir Baig, ²Jonathon Sandoe. ¹Nottingham University Hospitals, Nottingham, UK; ²Leeds Teaching Hospital Trust

10.1136/heartjnl-2021-BCS.168

Introduction The use of implantable cardiac electronic devices (ICEDs) is rising in part due to expanding indications and an aging population [1]. ICED infection occurs in 0.5-2.2% of all implants [1] and implicated in around 10% of cases of infective endocarditis (IE) [2]. ICED infection is associated with prolonged antibiotic therapy and hospital stays, with a mortality rate as high as 35% [1,3,4]. Echocardiography has an established role in the diagnosis of ICED infection and is advocated by guidelines [1], however whether imaging can guide duration of antimicrobial therapy is unclear.

Methods We aimed to determine whether echocardiography following ICED extraction was associated with length of antibiotic therapy. Consecutive patients undergoing ICED extraction at Leeds Teaching Hospitals between 01/01/2006 and 31/12/2017 were identified from a prospectively maintained IE database. Patient demographics, microbiology and echocardiographic data were recorded.

Results During the study period 64 patients underwent ICED extraction, had suspicion of IE and had available imaging data; of whom median age was 67.5(17) years and 52(81.3%) were male. IE was caused by *Staphylococcus* species in 44 (68.8%), 51(79.7%) episodes were definite according to the Duke criteria and 13 Duke possible. Device removal was usually performed percutaneously in 48(75%), with surgical extraction in 16. Reported complications included lead fracture (1) and superior vena cava dissection (1). Median episode duration (diagnosis to completion of antibiotics) was 40.5 (23.75) days, diagnosis to extraction was 17(23) days and extraction to completion of antibiotic therapy was 14(17.75) days. All included patients had an echocardiogram prior to extraction, 41(64.1%) had evidence of vegetation and of these, 32 were confined to the ICED lead whilst nine had endocardial involvement. Following extraction 43(67.2%) underwent echocardiography after a median of 8(7) days, demonstrating residual vegetation on native structures in 11 (figure 1). Compared to those without evidence of persistent vegetation, the duration of antibiotic therapy following extraction (20(10) vs 7.5(15.3) days) and imaging (28(19) vs 14 (13.8) days) was longer. Patients without evidence of vegetations on post extraction echocardiogram had similar episode duration to those who did not have further imaging (38.5(23) vs 36(29) days). Twenty (31.3%) were pacing dependent and either received temporary pacing or immediate re-implantation,

and a further 37(57.8%) were re-implanted during the index presentation (table 1).

Conclusions In this series, in the absence of persistent vegetations on echocardiogram, after removal of an infected ICED, duration of antibiotic therapy was shorter. This suggests imaging can help guide course length, potentially reduce the length of hospital stays, antibiotic risks and selection for resistant bacteria.

Conflict of Interest No

172 DETERMINING SYSTEMATIC BIAS IN THE ASSESSMENT OF LEFT VENTRICULAR FUNCTION BETWEEN TRANSTHORACIC ECHO AND CARDIAC MRI USING NEW GENERATION IMAGING SYSTEMS

¹Sally Chapman, ¹Graham Fent, ¹Laurence O'Toole, ¹Oliver Watson, ¹Jane Mackay, ²Pankaj Garg. ¹Sheffield Teaching Hospitals NHS Trust, Sheffield, UK; ²Norfolk and Norwich University Hospitals

10.1136/heartjnl-2021-BCS.169

Introduction Estimation of left ventricular systolic function (LVEF) commonly underpins clinical decision making in Cardiology. TTE has previously been demonstrated to underestimate LVEF compared with CMR. Sheffield Teaching Hospitals Trust (STH) recently upgraded to the latest generation of TTE scanners (GE E95) and CMR scanner (Siemens Magnetom Aera 1.5T). This service evaluation investigated correlation and bias between TTE and CMR LVEF reporting at our institution.

Methods Consecutive TTE studies at STH from April-October 2018 were cross-referenced, identifying patients who had also undergone CMR during this period. All patients – in and outpatients - with both TTE and CMR within 30 days were included. Patients with missing data, reversible aetiology or poor endocardial definition were excluded. The determination of LV function by echo was made using Simpson's biplane where endocardial definition was sufficient. If not, it was determined by visual assessment and a 5% range quoted.

Abstract 172 Figure 1

Abstract 171 Figure 1 Post ICED removal echocardiographic data and antibiotic therapy duration

Abstract 171 Table 1 Duration of antibiotic therapy in those with further ICED implant

	Patients (n)	Antibiotics post extraction (days)	Duration of episode (days)
Further ICED implant on same admission	37	14 (17)	42 (24)
Pacing dependent	20	11 (17.5)	43 (23.25)
Not pacing dependent	17	14 (17)	42 (23)
Discharged without ICED	27	14 (20)	36 (24.5)