TIME OF DISCHARGES POST-CATH LAB PROCEDURE

Abstract 60 Figure 3 Discharges

12.28% underwent permanent pacemaker implantation [figure 2]. 67.25% of patients were discharged either same-day (33.33%) or one day (33.92%) post-procedure [figure 3]. The additional cost of opening the second cath lab (primarily staffing costs encompassing nursing, physiologist, radiography and cleaning staff) was approximately €1626 per day (08:00-13:00 only), or €342 per patient (based on a mean of 4.75 cases/day). One hospital admission day to a general ward in UHL costs €890, with a CCU admission priced even higher. If each of the 115 patients who were discharged within 24 hours of their procedure needed just one further day of admission, this would cost the hospital an additional €63,020 (over 12 weeks), or €252,080 per annum. If the increased costs of CCU bed days and delays >24 hours were taken into account, this number would be expected to be higher again. The actual cost of each procedure was not included in this cost analysis as these fixed costs would be required irrespective of when the procedure was actually carried out.

Conclusions The opening of a second cath lab in our tertiary centre helped to improve patient flow, reduce waiting times for procedures, reduce admission lengths and reduce cost to the hospital. These are all important factors as our health service struggles to come to terms with the economic and organisational impact of the COVID-19 pandemic.

61 TO DETERMINE THE CHANGE IN EXERTIONAL CAPACITY WHILE WEARING A VARIABLE NUMBER OF SURGICAL FACE MASKS WHILE UNDERGOING AN EXERCISE TOLERANCE TEST

P O'Connor, A Wyse, D Kerins. *Mercy University Hospital and University College Cork, Ireland*

10.1136/heartjnl-2021-ICS.61

Introduction In August 2020 HIQA published a review on the community wearing of facemasks as a preventative measure against Covid-19. WHO reports that studies involving exercise and wearing of facemasks suggested limited detrimental effects to healthy persons, however there is some concern for those with respiratory disorders, thus recommending 'people should not wear masks during vigorous intensity physical activity because masks may reduce the ability to breathe comfortably'. Ireland has followed this guidance introducing social distancing and ventilation measures in exercise arenas. In contrast, guidance given by the CDC in USA advises wearing of a face-mask in the gym at all times. Shaw et al., reported no effect

of various types of facemasks on performance (incl. perceived exertion) using a cycle ergometer. Another study reports athletes presenting with 'hypoxic and hypercapnic breathing'.

Aim To analyse if varying thicknesses of surgical masks (one, three or five-thick) would alter the exertional capacity of fit healthy participants while performing an exercise tolerance test.

Methods Ethical approval was granted by the UCC's Clinical Research Committee. Healthy fit male participants were recruited via convenience sampling, a poster advertisement was placed on Mercy University Hospital noticeboard. Six suitable participants were accepted in order of contact made with the researcher. Those with confirmed/suspected COVID-19 in the previous 14 days of first test were excluded. The primary outcome was to reject the null hypothesis that 'there is no difference between exertional capacity and varying mask thickness'. Secondary outcomes included SpO2 measurements throughout exercise. The same Cardiac GE treadmill was used for each fitness test and data was obtained from this system and recorded manually on charts, data was anonymised. Statistical analysis using an ANOVA test was carried out with SPSS software. A P-value of <0.05 was accepted as statistically significant. Mean and standard deviation of each of the participants maximum exertional capacity was calculated for the three different mask thickness types. This was single-blinded to the participant, with the surgical mask

Abstract 61 Figure 1 Time to maximum exertion of each participant when exercising with one, three or five masks

perimeter being pre-sewn and four elastic earpieces used for each.

Results There was no loss to follow-up reducing attrition bias. There was no statistical significance in maximum exertional effort of these six participants between them wearing one, three or five surgical masks [figure 1].

Conclusion Little evidence exists so far comparing exercise effort with different thickness of facemasks. This study shows that for this sample there is no statistically significant change in exertional effort while wearing either one, three or five surgical masks. This study is limited by the sample size and that all subjects were fit, healthy males. However, it offers a basis for further primary research.

62

TRIUMPH OF WAVEFORM OVER NUMBERS – A CAUTIONARY TALE OF OVER RELIANCE ON TECHNOLOGY!

M Smith, J Carron, BF McAdam. *Beaumont Hospital, Dublin, Ireland*

10.1136/heartjnl-2021-ICS.62

Prolongation of the QT interval is an ECG signature associated with an increased propensity to develop polymorphic ventricular tachycardia (Torsades de Points), and is associated with an increased risk of sudden cardiac death. Automated measurement of ECG intervals is widely used by clinicians for both routine and emergency investigation and diagnosis. While inherited long QT syndromes, ischaemia and electrolyte disturbance are known factors affecting ventricular repolarisation (QT interval), medications can also independently lengthen QT interval. As such, accurate determination of the QT interval is vital for safe and appropriate clinical decision-making and medication prescription is particularly relevant to cardiology patients receiving anti-arrhythmic therapy. We have identified a small cohort of patients in our hospital (n=4, 2 females) in whom there were near instantaneous variations of up to 40% in the machine derived calculations of the QT intervals corrected for heart rate (QTc) for no apparent clinical reasons (table 1). All four patients had a history of cardiac arrhythmias, atrial (2) or ventricular (2) on amiodarone (2) or sotalol (2). All patients required a change in their treatment and one patient suffered cardiac arrest from torsades de points. In this case, the ECG machine generated and reported a QTc of 431ms when the actual QTc was nearer 640ms, a difference of over 200ms. Performance of consecutive ECGs was undertaken on one of the affected patients, as well as a healthy volunteer to assess if these findings were reproducible. This involved performance of three consecutive ECGs on three different ECG machines (Mortara Eli – 350 Machines). This produced near instantaneous marked variations of up to 160ms (381 – 548ms) in the reported QT interval in the affected patient despite stable heart rate (table 2). These errors were reported to the HPRA as well as the device manufacturer. This error in QT measurement occurs due to an error in the computer derived algorithm. Medical Devices Directive and technical international standards advise that physician over-reading is required in ECG interpretation. This short review demonstrates the potential hazards associated with physician complacency in the over-reading of ECGs performed in healthcare settings. One of the four cases outlined (25%) was associated with a

Abstract 62 Table 1 Baseline characteristics

	Patient I (AF)	Patient II (JL)	Patient III (SL)	Patient IV (MG)
Age (years)	63	79	56	80
Gender	Male	Male	Female	Female
Co-Morbidities	1	1	1	1
- Hypertension	0	1	1	0
- T2DM	1	1	1	0
- Raised BMI	0	1	1	0
- CKD				
Baseline Heart Rate	60 bpm	54bpm	52 bpm	60 bpm
Underlying Rhythm	A. Fib	A Fib	NSR	NSR
Historical Arrhythmia	Ventricular Fibrillation	Atrial Fib/Flutter	Atrial Fibrillation	Atrial Fibrillation
Anti-Arrhythmic Drug	Sotalol 120mg bd	Sotalol 80mg bd	Amiodarone 200mg od	Amiodarone 200mg od
Other Relevant Medications	0	0	1	1
- Beta Blockade	0	1	1	1
- Diuretic Therapy				
- PPI				
History of IHD	N	Y	N	Y
History of Valvular Heart Disease	MV Repair	N	N	Severe MR
Ejection Fraction (EF%)	35%	> 55%	55%	30%
Baseline QTc – Machine	424ms	443ms	424ms	431ms
Baseline QTc – Manual	520ms	600ms	530ms	640ms
Device In Situ	Y	N	N	N
Adverse Events	Nil	Nil	Nil	TdP

T2DM: Type 2 Diabetes Mellitus, BMI: Body Mass Index, bpm: beats per minute, A. Fib: atrial fibrillation, NSR: Normal sinus rhythm, PPI: proton pump inhibitor, IHD: Ischaemic Heart Disease, MV: mitral valve, MR: mitral regurgitation, TdP: Torsades de Points.

Abstract 62 Table 2 Sequential ECG testing on patient III and a healthy volunteer

R1: Record 1, R2: Record 2, R3: Record 3, bpm: beats per minute. All measurements reported in milliseconds

		Sim @ 60bpm			Sim @ 80bpm			Patient			Healthy Volunteer		
		R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Machine 1	BPM	60	60	60	80	80	80	51	51	51	72	73	70
	PR	172	164	176	171	161	168		75	116	153	158	157
	QRS	103	91	89	98	99	109	106	104	105	97	96	95
	QT	363	356	357	347	347	351	553	458	549	385	391	393
	RR	999	999	999	749	749	749	1174	1172	1162	831	817	854
Machine 2	BPM	60	60	60	80	80	80	51	52	51	70	72	71
	PR	173	175	171	167	167	163	112	74	73	160	150	158
	QRS	94	91	88	87	89	90	105	102	110	96	97	96
	QT	360	360	357	347	348	348	381	452	548	393	397	401
	RR	999	999	1000	749	749	749	1167	1143	1158	847	826	836
Machine 3	BPM	60	60	60	80	80	80	54	52	51			
	PR	170	167	175	170	159	161	189	217	80			
	QRS	91	99	100	100	90	105	101	106	105			
	QT	357	359	356	349	349	352	444	454	457			
	RR	999	999	999	749	749	749	1094	1143	1157			

serious and potentially fatal complication of QTc prolongation. However, while this study demonstrates some of the issues and potential implications of over-reliance on automated values, these individual cases were detected by a consultant cardiologist and thus highlight a larger concern, begging the question as to the true extent of this under-reported issue.