Improving Adherence to Local Guidelines in the Management of NSTEMI cases and the Corresponding Impact on Outcomes in University Hospital Ayr (UHA)

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NHS Ayrshire & Arran

BACKGROUND

Non-ST elevation myocardial infarction (NSTEMI) constitutes 4% of acute admissions in UHA with NHS Ayrshire & Arran having the highest incidence of coronary heart disease amongst mainland NHS boards from 2019 -2020.

AIM

Improve adherence to local guidelines and to assess the corresponding impact on time to diagnosis, mortality, hospital stay and the identification of those requiring intervention

METHOD

Management of 52 patients from January to March 2019 was compared to that of 57 patients in the corresponding months of 2020 post interventions. Data was collected retrospectively, stored in an excel spreadsheet and analysed using IBM SPSS 26.0. P< 0.05 was taken as being statistically significant.

1st Trop:		2nd Trop:	
ECG Δs: Y/N		DAPT: Y/N	
HTN: Y/N	Lipid Profile Checked: Y/N		Smoker: Y/N
Family History: Y/N		Diabetes: Y/N	
DOAC/Therapeutic INR (Warfarin): Y/N *(If yes, not for Fondaparinux)*			
B-Blocker: Y/N *(Provided BP stable)*	ACE-i: Y/N *(Provided BP stable)*		Statin: Y/N
GRACE Score: *(Can Calculate on MDCALC)*		ECHO:	

NSTEMI — THINK GRACE — Calculate on MDCalc

RESULTS

Demographics

The age range of patients was similar pre and post intervention and we noted a higher proportion of males in the post intervention cohort.

Socio-demographic characteristics of patients compared pre- and post-intervention

Variable	Pre-intervention N = 52	Post-intervention N = 57	Chi square	p-value
Age group (in years)				
< 75	28 (53.8%)	29 (50.9%)	0.096	0.757
≥ 75	24 (46.2%)	28 (49.1%)		
Gender				
Male	30 (57.7%)	40 (70.2)	1.844	0.175
Female	22 (40.3%)	17 (29.8)		

Grace Score Calculation

There was a 20.3% increase in GRACE score calculation (p = 0.031) and a 13% increase in early calculation by junior staff members.

Grace score calculation compared pre- and post-intervention

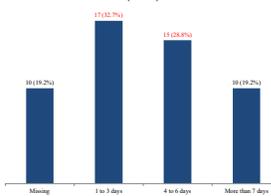| Variable	Pre-intervention N = 52	Post-intervention N = 57	Chi square	p-value
Grace Score				
Calculated	25 (48.1%)	39 (68.4%)	4.643	0.031
Not calculated	27 (51.9%)	18 (31.6%)		
Time to Grace Score calculation from presentation at A&E (in hours)				
Not calculated	27 (51.9%)	18 (31.6%)	11.232	0.011
< 12	6 (11.5%)	22 (38.6%)		
12 - <24	7 (13.5%)	8 (14.0%)		
≥ 24	12 (23.1%)	9 (15.8%)		

Grade of doctors compared pre- and post-intervention

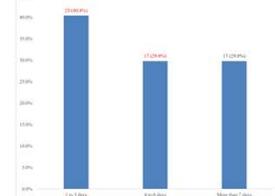| Variable	Pre-intervention N = 52	Post-intervention N = 57	Chi square	p-value
Grade of doctor				
Not calculated	27 (51.9%)	18 (31.6%)	0.097	0.953
Consultant	11 (21.2%)	12 (21.0%)		
Junior	14 (26.9%)	27 (47.4%)		

Hospital Stay

8.7% more patients spent 6 days or less in hospital post intervention (p=0.005).

Duration of Hospital Stay Pre Intervention (N=52)

Duration of Hospital Stay Post Intervention (N=57)

Diagnosis, PCI, Mortality

The time to diagnosis was quicker post intervention (p = 0. 016), however time to PCI and mortality remained stable.

Appropriateness of diagnosis, time to firm diagnosis compared pre- and post-intervention

| Variable	Pre-intervention N = 52	Post-intervention N = 57	Chi square	p-value
Appropriateness of diagnosis				
Inappropriate	4 (7.7)	19 (33.3)	10.739	0.001
Appropriate	48 (92.3)	38 (66.7)		
Time from initial to firm diagnosis				
< 1 hour	23 (44.2)	14 (24.6)	8.266	0.016
1 - 12 hours	16 (30.8)	33 (57.9)		
> 12 hours	13 (25.0)	10 (17.5)		

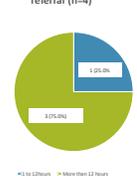Mortality Pre Intervention (N = 52)
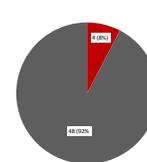
Mortality Post Intervention (N = 57)
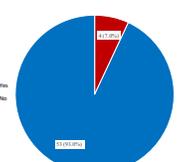
Pre Intervention: Time from Grace score calculation to PCI referral (n=7)
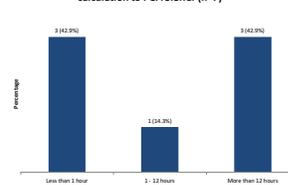
Post-Intervention: Time from Grace score calculation to PCI referral (n=4)

CONCLUSION

Interventions were successful in improving adherence to guidelines. This corresponded to shorter hospital stays, improvements in the timeliness of diagnosis but had no impact on mortality. Likewise, the proportion of patients managed either medically or with PCI was unchanged.

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