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RISK STRATIFICATION IN ACUTE CORONARY SYNDROME: DO WE NEED TO MOVE BEYOND GRACE?

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Introduction The GRACE score predicts in-hospital mortality and is a key tool in the risk stratification of patients with non ST-elevation acute coronary syndrome (ACS). This then determines treatment and the timing of any intervention such as PCI (1). We developed an ACS pathway based on these guidelines incorporating the GRACE score, serial troponin, ECG changes and presenting symptoms in order to categorise patients into high, intermediate and low risk (Figure 1).

Methods Based on discharge summary coding all NSTEMI-ACS patients were selected who presented between Aug 2014 and Jan 2015 at Barnet Hospital, a (non-PCI) district general. Notes were reviewed and GRACE score and risk stratification

re-calculated retrospectively using the new pathway. Patient demographics, time to intervention, length of stay and outcome were also collected. Only patients with type 1 ACS were included in the analysis. Data presented as mean $\pm$ SD.

Results 113 ACS patients were admitted during this period. 41(36%) were deemed to be high risk, 43(38%) intermediate risk and 8(7%) low risk. The remaining individuals had insufficient data. In the high risk group, 18(43.9%) were managed conservatively, 17(41.5%) transferred for early invasive management with view for PCI and 6(14.6%) underwent diagnostic angiogram on site. Of those high-risk patients managed invasively, only 4(23.5%) received treatment within <24 h as recommended by the guidelines; 7(29.1%) waited >72 h. In the intermediate risk group 33(76.7%) were managed invasively, including 17(39.5%) <24 h; no patients in this group were managed conservatively. In the high-risk group age 81 ± 11 vs. 64 ± 13 year in the intermediate group ($p < 0.001$). There was no differences in age between the intermediate and low-risk groups. Creatinine and length of stay were higher in the high risk group compared to the low and intermediate risk groups combined $p < 0.05$ and $p < 0.02$ respectively (Table 1/Figure 2).

Conclusions The GRACE score is used to determine timing of PCI in the latest ACS management guidelines. Age of the patient weighs heavily in calculating the score. We found that in a real-world ACS population patients classified as high-risk

Abstract 104 Figure 1 Royal Free NHS foundation trust ACS protocol from Lockie *et al.*

PCI=percutaneous coronary intervention
 CABG= Coronary artery bypass graft
 Conservative=Conservative management
 *1 Patient Lost to follow up

Abstract 104 Figure 2 Outcome if Invasive Management group: Those stratified for inpatient angiogram/PCI

were on average 20 years older than those in lower risk. They were also frailer, and because of co-morbidities were more likely to wait longer for their PCI, or be managed conservatively. With such an age-related bias, this questions how the GRACE score should be used in management pathways when a high proportion of patients do not qualify for the recommended treatment options. Perhaps other tools are needed for the categorisation of ACS patients to identify the true high-risk population who benefit from early intervention; or inclusion of a frailty index to reflect the complex needs of an increasingly elderly population?

Abstract 104 Table 1

	Low risk n=8	Intermediate risk n=43	High risk n=41
Age	63 ± 8	64 ± 13	81 ± 11 (P < 0.001 intermediate +low risk vs high)
ECG changes	6 (75%)	22 (51.2%)	22 (53.4%)
Troponin rise	4 (50%)	43 (100%)	34 (83%)
Creatinine (umol/l)	76.8 ± 18.5	105.72 ± 62.3	127.65 ± 63.1 (p = 0.0467 intermediate +low risk vs high)
Length of stay (days)	3.5 ± 1.0	6.2 ± 7.4	9.6 ± 8.6 (p = 0.022 intermediate +low risk vs high)
Cath <24 h** (as a percentage of those allocated for invasive management)	2 (2.9%)	18 (26.1%)	6 (8.7%)
Cath 24–48 h**	3 (4.3%)	15 (21.7%)	8 (11.6%)
Cath >72 h**	1 (1.4%)	7 (10.1%)	9 (13.0%)
Medical Management	1 (12.5%)	0 (0%)	18 (44%)

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IMPACT OF CV RISK FACTORS/DISEASE ON LENGTH OF STAY AND MORTALITY IN PATIENTS PRESENTING WITH MI

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Background Classical risk factors for cardiovascular disease such as hypertension and diabetes, and their association with myocardial infarction (MI), have been thoroughly investigated. However, more research is needed to investigate the correlation between these risk factors and the impact on length of stay (LOS) and mortality in patients presenting with MI, which was the aim of this study.

Methods We reviewed anonymous patient data including demographics, LOS, prevalence of cardiovascular comorbidities, and mortality during 25,287 consecutive admissions for MI from seven hospitals in the North West of England between 1 January 2000 and 31 March 2013. The ACALM (Algorithm for Comorbidities, Associations, Length of stay and Mortality) protocol, using ICD-10 and OPCS-4 coding systems, was used to track patient data. LOS and mortality of MI patients with and without cardiovascular comorbidities was compared by multinomial logistic regression. P values <0.05 were taken as statistically significant.

Results Of 25,287 patients admitted with MI over the study period, mean (± SD) age was 66.6 ± 14.3 and 64.2% were male. The mean (± SD) LOS was 7.0 ± 16.2 days and there were a total of 9,653 (38.2%) deaths. The classical cardiovascular risk factors hypertension and hyperlipidaemia were associated with a decreased LOS and mortality (7.0 and 4.8 days respectively, P < 0.001; 36.8% OR 0.72 [95% CI 0.67–0.77] and 19.4% OR 0.42 [95% CI 0.39–0.46] respectively, P < 0.001), whereas diabetes was associated with a longer LOS and higher mortality (7.8 days, P < 0.05; 44.4% OR 1.3 [95% CI 1.20–1.41], P < 0.001). Angina pectoris was associated with shorter LOS and reduced mortality (5.4 days; 33.5% OR 0.75 [95% CI 0.68–0.82], P < 0.001). Other