(ROS) is involved in the pathogenesis of many cardiovascular diseases. Several clinical studies have reported that a single nucleotide polymorphism (SNP) of p22^{phox} (C242T) is negatively associated with the incidence of coronary heart disease. However, the mechanism involved remains unknown. In this study we combined computer molecular modelling with cell and molecular biology to investigate the potential mechanism of the p22^{phox} C242T on endothelial ROS production. Our in silico 3D protein structure model of p22^{phox} consists of an N-terminal transmembrane domain (124 a.a.) and a C-terminal cytoplasmic domain (71 a.a.). The p22^{phox} C242T causes a substitution of His72 to Tyr72 in its extracellular loop, which results in significant morphological changes in the putative interactive region of the p22^{phox} with the catalytic subunit (Nox2), and this may result in a reduced ROS production. To test this hypothesis, we generated p22^{phox} C242T construct by site-directed mutagenesis and transfected mouse microvascular endothelial cells (SVEC4-10) with either wild-type (WT) p22^{phox} or p22^{phox} C242T. Compared to WT control, C242T had no significant effect on basal ROS production. However, when cells were stimulated with TNFα (100 U/ml, 45 min), C242T significantly reduced (48%±5.6%) the levels of ROS production detected by both lucigenin-chemiluminescence and DCF fluorescence. Reduced ROS production was accompanied with inhibition in TNFα-induced ERK1/2 and p38MAPK activation and NFκB phosphorylation. Furthermore, we found that C242T reduced significantly (31.9%±2%) the TNFα (12 h)-induced endothelial cell apoptosis as detected by Annexin V flow cytometry. In conclusion, we reported for the first time that the p22^{phox} C242T SNP is associated with a significant protein morphological change, which affects the activity of NADPH oxidase, and reduces the ROS production by endothelial cells when challenged by TNFα. Our study provides important insight into the mechanism of p22^{phox} C242T SNP and its clinical relevance as a natural inhibitory factor of the incidence of coronary heart disease (CHD).

| 122 | AN INTERVENTION TO ALTER HELP-SEEKING BEHAVIOUR AND REDUCE PRE-HOSPITAL DELAY TIME IN PATIENTS DIAGNOSED WITH ACUTE CORONARY SYNDROME (ACS) |

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Introduction The problem of pre-hospital delay among patients with acute coronary syndrome remains unresolved despite past attempts to contain the problem. Mortality and morbidity could be reduced if patients sought earlier treatment for symptoms. Median pre-hospital delay times ranging from 1.0 h to 15.2 h have been reported in the literature. Most of the reported pre-hospital delay times extend beyond the parameters outlined in the European Society of Cardiology guidelines.

Methods A randomised controlled trial was used to test the effectiveness of an educational intervention on pre-hospital delay time and help-seeking behaviours including contacting the general practitioner, use of nitrates, use of ambulance and time taken to notify someone in response to ACS symptoms. The intervention group were given a 30-min individualised education session which focused on: education about heart disease misconceptions, stimulating behavioural change through motivational techniques and the provision of a tailored action plan for future use. This intervention was reinforced 1 month later by telephone.

▶ Operational definition: Pre-hospital delay time was defined as the time from acute symptom onset until arrival at the emergency department.

▶ Research instrument: Response to Symptoms Questionnaire.

Results Pre-hospital delay time was initially recorded on 1944 patients (control: 972; intervention: 972). Of these, 314 patients were readmitted to an emergency department with ACS symptoms (control: 137; intervention: 177). We again measured their pre-hospital delay times. The readmission diagnoses were: control group: (STEMI: 24.8%; NSTEMI 25.5%, unstable angina 49.6%) and intervention group: (STEMI 24.3%; NSTEMI 35.0%; unstable angina 40.7%). Data were collected using patient interviews and pre-hospital delay times were subsequently verified from the case notes. Allowing for the covariate of education, on which the two groups differed, we used repeated measures ANCOVA on log transformed delay-time. Those in the intervention group demonstrated a significant decrease in pre-hospital delay time compared to both their own baseline (p<0.001) and to that of the control group (p=0.04). The intervention group also had a lower rate of consultation with a general physician before attending the emergency department (p=0.024) and were quicker to report the presence of symptoms to another individual (p=0.010). The groups did not differ on the use of ambulance (p=0.510) or nitrates (p=0.058).

Conclusions/Implications This RCT demonstrated that it is possible to reduce pre-hospital delay time in patients diagnosed with ACS. This can be achieved through an individualised educational intervention that focuses on symptom identification and the appropriate actions to take in this situation. There is a need for renewed and continued emphasis on the importance of ambulance use when ACS symptoms arise.

| 123 | IRISH PATIENTS' PERCEPTIONS OF THEIR RISK FOR A HEART ATTACK IN THE FUTURE FOLLOWING THE DIAGNOSIS OF ACUTE CORONARY SYNDROME |

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Introduction People who perceive themselves to be at risk of an acute coronary syndrome (ACS) are more likely to seek treatment when ACS symptoms arise. This in turn leads to appropriate treatment-seeking behaviour and earlier medical intervention, which are crucial to successful outcomes. However, many people fail to appreciate their true risk of a future heart attack and are thus less likely to seek timely treatment for ACS symptoms. Consequently, their risk of mortality and morbidity is increased relative to those who perceive themselves to be at risk. The aims of this study are to ascertain how individuals who have been diagnosed with ACS perceive their future risk of heart attack and to identify the differentiating characteristics associated with perceptions of such risk.

Methods Data were collected from 1946 patients admitted to hospital with an ACS event. Recruitment took place across five of the major acute hospitals in Dublin, Ireland. Ethical approval was granted for this cross-sectional study. The ACS Response Index was the research instrument used for this study. As a component of this, patients were asked the following question: "Compared to other people your age, how likely do you think it is that you could have a heart attack in the next 5 years?" Data were analysed using PASW v18.

Results The total sample mean age was 63 years±11.7 years, 72% were male. Patient diagnoses comprised of: STEMI (28%), NSTEMI (36.4%) and unstable angina (35.6%). A total of 732 (37.6%) felt that their risk was about the same as others their age, while 359 (18.5%) felt that their risk was lower. The remaining 855 (43.9%) felt their risk was higher than others their age. To determine the characteristics of those who accurately assessed their risk (felt that relative to others their own age, it was at least equivalent or higher) we performed logistic regression using the following variables: age,

gender, education level, history of angina, history of myocardial infarction, history of angioplasty, previous coronary artery bypass surgery, diabetes, current smoking status, hypercholesterolaemia and hypertension. Those who perceived themselves to be at higher risk of a future event were more likely to be female (p<0.001), have a higher education level (p=0.02), aged between 44 and 59 (p=0.02) and have a previous history of percutaneous coronary angioplasty (p=0.003).

Conclusions/Implications Despite the fact that the entire study sample were diagnosed with ACS, approximately one in five (20%) perceived that they were less likely than other people of the same age to experience a heart attack in the future. These findings highlight the need for specific and targeted education of both men and women in Ireland with respect to the risks for heart disease and heart attacks.

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124 IMPACT OF CONTRAST-INDUCED NEPHROPATHY UPON SHORT AND LONG-TERM OUTCOMES OF PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION UNDERGOING PRIMARY PERCUTANEOUS CORONARY INTERVENTION

doi:10.1136/heartjnl-2012-301877b.124

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Introduction Contrast induced nephropathy (CIN) is associated with adverse clinical outcomes, including prolonged hospitalisation and increased morbidity and mortality following elective invasive cardiac procedures. The impact of CIN following primary PCI (PPCI) for ST segment elevation MI (STEMI) remains poorly defined.

Aim To investigate the long-term prognostic implications of CIN following PPCI for STEMI.

Methods This is a retrospective observational registry study. Data were available upon 2224 patients undergoing PPCI for STEMI at a tertiary Cardiac centre between October 2003 and May 2010. CIN was defined as an increase in serum creatinine (>25% or 44.2 mmol/l) within 2 days of PPCI. The primary outcome measure was all-cause mortality determined via Office of National Statistics data.

Results CIN was observed in 317 patients (14.3%). Patients with CIN were older (69.3 vs 62.7, p<0.0001), more likely to be female (30.0% vs 22.6% p=0.004), had more vascular risk factors (including diabetes, hypertension and chronic kidney disease), had more previous MIs (17.7% vs 11.7%, p=0.003), more multivessel CAD

(55.2% vs 40.6%, p<0.0001), and more LV dysfunction (52.1% vs 32.1%, p<0.0001) (Abstract 124 table 1). Length of hospital stay (5 vs 2 days, p<0.0001), 30-day mortality (16.4% vs 2.0%, p<0.0001) and 3-year mortality (22.4% vs 5.0%, Log rank p<0.0001) (Abstract 124 figure 1) was worse in patients with CIN. CIN was an important independent predictor of all cause mortality (HR 2.71, CI 1.97 to 3.75). Other independent predictors of mortality included age>75 years (HR 1.81, CI 1.28 to 2.57), eGFR <60 mls/min (HR 2.36, CI 1.69 to 3.31), cardiogenic shock (HR 3.98, CI 2.76 to 5.73), LV dysfunction (HR 1.82, CI 1.34 to 2.48) and multivessel CAD (HR 1.59, CI 1.15 to 2.20).
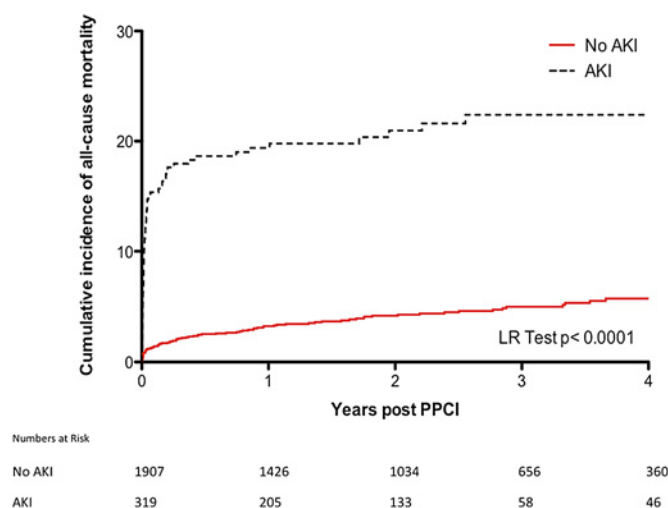
Abstract 124 Figure 1 Effect of AKI upon all-cause mortality following PPCI for STEMI.

Conclusion CIN following PPCI for STEMI was associated with increased short and long-term mortality and increased length of hospital stay. Better strategies are needed to prevent CIN in high risk STEMI patients.

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125 MONOCYTE SUBPOPULATION COUNTS AND FUNCTIONAL CHARACTERISTICS PREDICT ADVERSE CLINICAL EVENTS POST ST ELEVATION MYOCARDIAL INFARCTION

doi:10.1136/heartjnl-2012-301877b.125

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Background Monocytes are implicated in the initiation of the atherosclerotic plaque through to plaque instability and rupture during presentation with an acute coronary syndrome (ACS). Little is known about the predictive role of monocytes on clinical outcome. We studied the role of the three phenotypically and functionally discrete monocyte subpopulations in predicting major adverse cardiac events (MACE)—defined as recurrent ACS, heart failure and death- following ST elevation myocardial infarction (STEMI).

Method STEMI patients treated with percutaneous revascularisation, were recruited in the first 24 h post-infarction. Peripheral blood monocyte subpopulations were enumerated and characterised using flow cytometry after staining for CD14, CD16 and CCR2. Phenotypically, monocyte subpopulations are defined as: CD14++CD16−CCR2+ (Mon1), CD14++CD16+CCR+ (Mon2) and CD14+CD16++CCR2− (Mon3) cells. Functionally, monocyte subpopulation activation of nuclear factor κ B (NFκB) was analysed. Activation of NFκB was determined by flow cytometry as the mean

Abstract 124 Table 1 Clinical characteristics of study cohort

	No AKI (n=1907)	AKI (n=317)	Significance
Age (yrs±SD)	62.7±13.8	69.3±1.8	0.004
Age>75, n (%)	404 (21.2)	128 (40.4)	<0.0001
Female, n (%)	431 (22.6)	95 (30.0)	<0.0001
Hypertension, n (%)	720 (37.8)	147 (46.4)	0.004
Diabetes mellitus, n (%)	324 (17.0)	81 (25.6)	<0.0001
Hypercholestrolaemia, n (%)	1120 (58.7)	149 (47.0)	<0.0001
Smoking history, n (%)	554 (29.1)	98 (30.9)	0.500
eGFR <60 mls/min, n (%)	355 (18.6)	105 (33.1)	<0.0001
Mean eGFR (±SD)	77.6±21.0	75.1±31.4	0.06
Previous MI, n (%)	223 (11.7)	56 (17.7)	0.003
Previous CABG, n (%)	52 (2.7)	12 (3.8)	0.296
Previous PCI, n (%)	180 (9.4)	36 (11.4)	0.286
EF <50%	613 (32.1)	165 (42.1)	<0.0001
Multivessel CAD, n (%)	774 (40.6)	175 (55.2)	<0.0001
Cardiogenic Shock, n (%)	88 (4.6)	43 (13.6)	<0.0001