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MKL1 C-184>T AND CYP3A5 A-6986>G POLYMORPHISMS ARE ASSOCIATED WITH CONTRAST INDUCED ACUTE KIDNEY INJURY AFTER PCI

Oral Contributions
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Background: Currently, little is known about the relationship between single nucleotide polymorphisms and the risk of contrast induced acute kidney injury (CI-AKI) after PCI. The presence of the MKL1-184 C>T SNP has been associated with atherosclerosis in prior studies. The CYP3A5 gene encodes an enzyme involved in drug metabolism in vivo.

Methods: A total of 1,018 patients undergoing percutaneous coronary intervention were prospectively enrolled. MKL1-C184 >T and CYP3A5-A6986>G SNPs were successfully analysed in 1004 and 963 patients, respectively. CI-AKI was defined as 1) a relative increase in serum creatinine of ≥25%, or 2) an absolute increase in serum creatinine of ≥0.5 mg/dL within 48 hours after PCI.

Results: 72% of patients enrolled were male and 34% of patients had diabetes mellitus. Mean age was 67±8 years. CI-AKI occurred in 52 patients (5.1%). Table 1 shows the occurrence of CI-AKI according to SNP status. MKL1 SNP hetero- or homozygosity was associated with a reduced risk of CI-AKI while CYP3A5 SNP hetero- or homozygosity was associated with an increased risk of CI-AKI. These associations remained significant after multivariate logistic regression analysis, correcting for age, BMI, gender, hypertension and diabetes mellitus (MKL1 OR 0.54, 95%CI 0.30-0.98 , p=0.04; CYP3A5 OR 1.94, 95%CI 1.08-3.50, p=0.03).

Conclusion: This analysis shows an independent protective effect of MKL1-C184>T SNP and an independent harmful effect of CYP3A5-A6986>G SNP regarding the incidence of CI-AKI after PCI.

	CYP3A5 AA N=669 (69.5%)	CYP3A5 AG N=206 (21.4%)	CYP3A5 GG N=88 (9.1%)	P-value
CI-AKI N,%	27 (4.0%)	16 (7.8%)	8 (9.1%)	0.028
	MKL1 CC N=462 (46.0%)	MKL1 CT N=415 (41.3%)	MKL1 TT N=127 (12.6%)	P-value
CI-AKI N,%	33 (7.1%)	14 (3.4%)	5 (3.9%)	0.034