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 Abstracttitel: Factors associated with post-operative inflammatory response after elective coronary artery bypass surgery

**Purpose:** C-Reactive Protein (CRP) is a non-specific inflammatory marker which increases in response to a variety of insults including cardiopulmonary bypass (CPB) and cardiac surgery<sup>1</sup>. We have previously reported typical CRP behaviour following uncomplicated coronary artery<sup>2</sup> and valve<sup>3</sup> surgery and now examined factors which might be associated with the post-operative inflammatory response.

**Methods:** We examined the records of 1985 consecutive cardiac surgical patients from our centre between 2003 and 2005 using a predefined statistical analysis. We identified patients without missing data on the 2<sup>nd</sup> and 3<sup>rd</sup> post-operative day. Categorical data relating to severity of chronic disease for heart failure, pulmonary disease, diabetes and renal disease were dichotomised into indicator variables. Variables which were significantly associated in a univariate analysis ( $p < 0.1$ ) were then entered in a multiple linear regression model. The following factors were examined: age, sex, body-mass index (BMI), chronic disease and bypass time.

**Results:** 469 patients had CRP measured on day 2 and 3. These patients were slightly older (1.3yrs, 95%CI 0.3-2.3) and had a slightly higher Euroscore (0.34, 95%CI 0.09-0.60) than those with missing data. Table 1 shows results of the regression analysis. The F-statistic for the model was 8.30, and the correlation coefficient ( $r^2$ ) was 0.10. Chronic disease (heart failure, diabetes, pulmonary disease) along with obesity and male sex all tended to increase CRP response.

	$\beta$ coefficient	95% Confidence Interval	P value
Age	-1.0	-1.7-0.3	0.005
Male Sex	16.1	0.6-31.5	0.042
BMI	1.2	-0.1-2.5	0.062
NYHA 3 or 4	11.7	-2.8-26.1	0.115
Diabetes	28.21	13.96-42.46	<0.001
Pulmonary Disease	26.3	8.5-44.1	0.004
Baseline (Y intercept)	244.7	179.1-310.4	<0.001

**Conclusions:** Interpretation of this data should be limited to hypothesis generation due to the problems with its retrospective nature and missing samples. However, it is biologically plausible that the inflammatory response decreases with age and tends to be increased in men (oestrogen lack) and obesity (via leptin). 1. Gabay C, Kushner I. Acute-phase proteins and other systemic responses to inflammation. *N Engl J Med* 1999; 340: 448-54 2. Ayala J, Smith A, Farrar D. C-reactive protein levels following cardiac surgery in adults. *European Journal of Anaesthesiology* 2006; 23 Suppl 37:196 3. Ayala J, Farrar D, Smith A. Changes in C-reactive protein level following uncomplicated single valve surgery. *Anaesthesia* 2007 62(3),315-316