

Association of C-reactive protein concentration with weight of patients awaiting Coronary Artery Bypass Graft (CABG)

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Proportional mortality for Cardiovascular Diseases (CVD) was 30% in Sri Lanka for all ages according to WHO. Overweight and obesity are defined risk factors for non-communicable diseases such as CVD. C-reactive protein (CRP) is an inflammatory marker and has an independent predictive value for CVD when within the clinically normal range. Most studies indicate an association of elevated CRP levels with overweight and obese due to low grade systemic inflammation. Most these observations are according to western anthropometric parameters and few reports related to South Asians exist. Therefore, the objective of this study was to investigate the association of CRP with weight of confirmed CVD patients (n=51) awaiting Coronary Artery Bypass Graft. The study population included 30 males (age 57 ± 10.4 yrs) and 21 (age 56 ± 9.5 yrs) females with no clinical signs of inflammation and infection. The weight, height and waist circumferences (WC) were measured and blood samples were collected to analyse serum CRP level by turbidimetric immunoassay. Body Mass Index (BMI) was calculated and the subjects were identified based on BMI values defined for Asians by the WHO as being overweight (≥ 23 kg/m²) or non-overweight (< 23 kg/m²) or obese (≥ 25 kg/m²). CRP of the study group ranged between 0.4–14.5 mg/L. Depending on CRP concentration, the subjects were divided to two categories, < 5 mg/L and ≥ 5 mg/L. 70.6% individuals were either overweight or obese (47.1%). From the total population 84.3% of the subjects had < 5 mg/L CRP. There were positive correlations ($p < 0.05$) between BMI and CRP concentration when considering the total group ($r = 0.420$), the overweight group ($r = 0.476$) and the obese group ($r = 0.563$). A negative correlation was observed when considering the subjects who had BMI < 23 with their CRP ($r = -0.121$, $p > 0.05$). Significant correlations between WC and CRP concentration ($r = 0.356$, $p < 0.05$) of the total subjects and the overweight subjects ($r = 0.370$, $p < 0.05$) were also observed. Although not significant, the WC of obese correlated positively with CRP ($r = 0.316$, $p > 0.05$). The odd ratios of overweight and obese with elevated CRP were 3.37 (95% CI: 0.37–30.20) and 4.17 (95% CI: 0.75–23.06) respectively. The results thus indicate overweight and obese patients with confirmed CVD have a threefold and a fourfold high risk of having elevated CRP respectively. BMI and waist circumference (central obesity) had positive correlations with CRP in overweight and obese CVD patients.

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