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Plasma Lipocalin-2 Concentration is Related to Blood Pressure and is Increased in Hypertension

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Introduction: Lipocalin-2 is secreted by adipocytes and is upregulated in obesity. As obesity is known to be a cause of hypertension, we investigated whether the plasma level of lipocalin-2 is related to blood pressure and hypertension.

Methods: The plasma concentration of lipocalin-2 was measured by immunoassay in 1925 subjects of the Hong Kong Cardiovascular Risk Factor Prevalence Study (CRISPS). Blood pressure was measured after prolonged resting by a trained nurse manually using a calibrated sphygmomanometer three times at 5 minute intervals.

Results: Plasma lipocalin-2 level was higher in men than in women (median [IQR] 37.7 [30.5-47.9] vs. 31.6 [25.4-40.4], $p < 0.001$). It was significantly related to age ($r = 0.15$, $p < 0.001$) and systolic blood pressure ($r = 0.15$, $p < 0.001$). In women but not in men, it was also significantly related to waist circumference ($r = 0.16$, $p < 0.001$), BMI ($r = 0.09$, $p = 0.004$), diastolic blood pressure ($r = 0.14$, $p < 0.001$) and fasting plasma glucose ($r = 0.089$, $p = 0.004$). Plasma lipocalin-2 level was significantly higher ($p < 0.001$ adjusted for age) in hypertensive men and women (median [IQR] 41.1 [31.7-53.0]; 36.5 [27.5-50.1]) compared to normotensive men and women (36.9 [29.6-45.6]; 30.9 [25.2-38.3]).

Conclusion: Plasma lipocalin-2 concentration is related to systolic blood pressure, and is higher in men and in people with hypertension. Lipocalin-2 may be involved in the pathogenesis of hypertension.

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