Circulating Clusterin (Apoprotein J) Levels are Associated with Adiposity and Systemic Inflammation

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Objective: Clusterin is an abundant plasma protein which binds to various biological molecules such as high-density-lipoprotein, immunoglobulin, complements and leptin. We have recently found that clusterin has potent anorexigenic action by mediating the effect of leptin, in the hypothalamus. In the present study, we investigated the factors affecting circulating clusterin levels in humans.

Research Design and Methods: We measured fasting serum clusterin levels in healthy Korean adults (111 men and 93 women) using ELISA. We analyzed the relationships between serum clusterin concentrations and anthropometric, metabolic and inflammatory parameters.

Results: Circulating clusterin concentrations were significantly higher in men than in women. In both men and women, serum clusterin levels are higher in overweight and obese subjects than in lean subjects. Consistently, serum clusterin levels are increased in proportion to body mass index (BMI), waist circumference and abdominal visceral fat area. Besides adiposity, serum clusterin levels were associated with the levels of systemic inflammatory markers such as C-reactive protein, uric acid, ferritin and retinol binding protein-4.

Conclusion: Fasting serum clusterin levels are associated with the parameters of adiposity and systemic inflammation. Therefore, circulating clusterin may be a surrogate maker for obesity-associated systemic inflammation.