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Relationship between Metabolic Syndrome and C-reactive Protein in Japanese Diabetic Men: Impacts of Cardiorespiratory Fitness and Visceral Fat Area

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Abstract

Background: It is still unknown whether relationship between prevalence of metabolic syndrome (MS) and C-reactive protein (CRP) is affected by cardiorespiratory fitness ($\dot{V}O_2\text{max}$) and/or visceral fat area (VFA).

Methods: Ninety-four Japanese men with visceral fat accumulation were participated in this study. They were newly diagnosed patients with either impaired glucose tolerance (IGT, n=18) or type 2 diabetes mellitus (T2D, n=76). They have not been received any medical and interventional therapies before participation of this study. High sensitivity CRP (hs-CRP) was measured by immunonephelometry. $\dot{V}O_2\text{max}$ was estimated by indirectly multistage exercise test using cycle ergometer. VFA was measured using CT scanner. Definition of MS was used a modified WHO criteria.

Results: Concentrations of hs-CRP did not significantly differ in the MS and non-MS groups. All subjects were divided three groups (1st, 2nd, and 3rd groups) based on the hs-CRP concentrations. $\dot{V}O_2\text{max}$ differed significantly among three groups, while visceral fat area did not. Odds ratio for the prevalence of MS was significantly higher in the 2nd and 3rd groups than that of 1st group as reference. VFA as adjusting factor disappeared a part of these significances, moreover, $\dot{V}O_2\text{max}$ disappeared all of those.

Conclusions: Our study suggested that prevalence of MS might be depend on cardiorespiratory fitness and/or visceral fat area more than CRP.

Key words: newly diagnosed diabetic patient, estimated $\dot{V}O_2\text{max}$, metabolic syndrome, C-reactive protein

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