COMPLETION REPORT

Circulating uric acid as independent risk factor for metabolic syndrome

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Circulating uric acid links to metabolic syndrome in Indonesia and prevalence of syndrome metabolic in Indonesia is higher than that of in Japan

Background: Hyperuricemia is strongly associated with cardiovascular disease, kidney disease, and hypertension, increasing the risk of mortality, but it is not commonly considered a true risk factor for metabolic syndrome (MetS).

Purpose: Aim of this study was to know the correlation between the level of circulating uric acid and MS in urban adult (≥ 40 years old) Indonesian population. The specific purposes of this study were to know the prevalence of MetS in the population, to know the prevalence of hyperuricemia in the population with or without MetS, to know the correlation between the level of blood uric acid and each risk factor of Mets in the population, and to know the correlation between the level of blood uric acid and Mets in the population.

Methods and results: We determined the prevalence of MS in the general population in Semarang, Central Java, Indonesia by a cross-sectional study. Prevalence of MetS was determined by the existence of a combination of 3 or more factors: central obesity (waist circumference ≥ 90 cm for male or ≥ 80 cm for female), hypertension, abnormal fasting glucose metabolism (fasting blood sugar ≥ 110 mg/dl), high triglyceride ≥ 150 mg/dl), and low HDL cholesterol level (< 40 mg/dl for male or < 50 mg/dl for female). This study involved 196 adults: 70 males and 126 females, who were 40 years of age or older (mean: 57.4 years old). The incidence of MS was 33.67%; women had a higher incidence (34.92%) than men (31.43%). Hyperuricemia (serum uric acid level > 7.0 mg/dl for men or > 6.0 mg/dl for woman) was found in 32% subject with MetS. There was a significant association between hyperuricemia and MetS (p = 0.035). Abnormal fasting glucose metabolism had a significant correlation with hyperuricemia (p = 0.001), while other factors of MetS had no significant correlation statistically, i.e. hypertension p = 0.084, low HDL level p = 0.109, central obesity p = 0.220, high triglyceride p = 0.473, and waist circumference p = 0.220. In addition, MetS was inversely correlated with handgrip strength (p =0.039), and in the subject with MetS, uric acid level was correlated with intensity of physical activity (p = 0.004) and waist circumference was inversely correlated with peak flow of expiration (p = 0.021).

Conclusion: Data of this study showed that hyperuricemia was associated with metabolic syndrome, particularly with a factor of syndrome metabolic abnormal fasting glucose metabolism. The prevalence of syndrome metabolic in this study was higher than that of in Japan.

Publication of the Results of Research Project:

Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.) (Result of study will be submitted to the Annual Scientific Meeting of Indonesian Heart Association 2016 in Jakarta Indonesia)
Thesis (under submission to Journal) 1. Correlation between syndrome metabolic and cardiorespiratory fitness as well as handgrip strength. Vika Amalia, Darmawati A Indraswati, Udin Bahrudin. (Undergraduate thesis). 2. Correlation between uric acid level and intensity of physical activity in subject with metabolic syndrome. Bazilah Dayana, Darmawati A Indraswati, Udin Bahrudin. (Undergraduate thesis). 3. Correlation between waist circumference and peak expiratory flow rate in subject with metabolic syndrome. Ihwanu Sholeh, Darmawati A Indraswati, Udin Bahrudin. (Undergraduate thesis).
Book (Publisher and Date of the Book, Title and Author of the Book, etc.) --