Correlation Between Osteoprotegerin and Triglyceride/HDL-Cholesterol Ratio in Metabolic Syndrome Patients

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Background: Serum Osteoprotegerin (OPG) is an independently indicator of cardiovascular disease. The serum concentration ratio of triglyceride (TG)/high density lipoprotein cholesterol (HDL-C) also identify cardiovascular disease. The aim of this study is to analyze correlation between OPG and TG/HDL-C ratio in metabolic syndrome (MetS) patients.

Methods: A cross sectional study with analytic approach was conducted on Moewardi Hospital, Indonesia in 2013. Forty patients MetS and forty patient non-MetS were recruited from the general medical check-up clinic. Patients were diagnosed metabolic syndrome based on International Diabetes Federation (IDF) 2005 criteria. The differences between variables were compared using independent sample t-test. The relationship between OPG and TG/HDL-C ratio was evaluated by Pearson’s correlation coefficient.

Results: The patients mean age was 47.7±8.5 years in MetS and 42.6±9.3 years in non-MetS patients. MetS more common in women than in men (27 vs 13). There were statistically significantly differences among parameters: age, TG, OPG, TG/HDL-C ratio (p=0.013, 0.001, 0.002, 0.001 respectively). Mean OPG serum levels higher in MetS than non-MetS (0.73±0.32 vs 0.55±0.17 (pmol/l)). MetS patients had higher mean TG/HDL-C ratio than non-MetS (5.78±4.36 vs 2.76±1.65). Osteoprotegerin significantly correlated with TG/HDL-C ratio in MetS (r=-.46, p=0.003), but not in non-MetS patients.

Conclusions: The OPG was negatively correlated with TG/HDL-C ratio in metabolic syndrome.

Pathway Analysis Using Genome-Wide Association Study of Polycystic Ovary Syndrome

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Background: Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders in women of reproductive age, influenced by environmental and genetic factors. Genetic studies in PCOS are recently focusing on the identification of susceptibility loci through genome-wide associations studies (GWAS). However, GWAS focuses more on individual single nucleotide polymorphisms (SNPs) meeting a stringent statistical significance and most of the SNPs identified lack a functional relevance. To further elucidate the data obtained from the GWAS, pathway-based approaches are being applied. The aim of this study is to elucidate the biological pathways or gene sets involved in the pathogenesis of PCOS through pathway analysis.

Methods: Two thousand unevaluated women of reproductive age who volunteered for evaluation of PCOS were recruited. After eliminating invalid data through the quality control procedures, 636,797 autosomal SNPs representing 1,221 individuals (432 PCOS and 789 control women) were obtained. Pathway based approach was conducted using meta-analysis gene-set enrichment of variant association (MAGENTA). Top ranking pathways or gene sets associated with PCOS were identified, and significant genes within these pathways were also determined.

Results: Biological pathways related with oocyte meiosis, regulation of insulin secretion by acetylcholine and free fatty acids were significant through pathway analysis (all nominal gene-set enrichment analysis (GSEA) Ps < 0.05) (Table 1). Within these biological pathways, genes including SMC3, PLCB1, IN5, KIAA, STXB1, FCN3 and PLCL2 were also identified (all Gene Ps < 0.05).

Conclusions: Through pathway analysis of PCOS, biological pathways and genes associated with ovulation and insulin secretion were identified. These results might provide new insights in elucidating the pathophysiology of PCOS.

The Effect of Pregnancy and Lactation on Prolactinoma

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Background: Prolactinoma predominantly occurred in young women of reproductive age. But there are limited data about the effect of pregnancy and lactation on prolactinoma progression. We evaluated the safety of dopamine agonists including bromocriptine and cabergoline and pregnancy outcome in prolactinoma patients.

Methods: Patients diagnosed with prolactinoma who experienced pregnancies were included. Sellar MRI and serum prolactin levels were performed before and after pregnancy and lactation. Total 46 patients with 62 pregnancies were included.

Results: Among 62 pregnancies, spontaneous pregnancies analyzed 61 (98.3 %) and only one pregnancy was made by in vitro fertilization. Live births were in 51 (82.3 %), while spontaneous abortions occurred in 11 (17.7 %). Twenty-one were treated with cabergoline at the time of conception, whereas twenty-eight with bromocriptine. We divided patients into two groups by their changes of adenoma size after delivery; increased (n = 22) or decreased (n = 15). Patients with bigger adenoma size before pregnancy showed significantly increased after childbirth. However, the enlarged adenoma did not cause any clinical problems. Of all, breast-feeding was performed in 38 pregnancies. Mean duration of lactation was 4.9 ± 4.4 months. Among those 38, 16 patients had done MRI follow-up after the lactation. There were decreased adenoma sizes in 9 patients, no changes in 5 patients, while increased only in two patients.

Conclusions: In conclusion, breast-feeding is not contraindicated in patients with prolactinoma, especially those who had smaller adenoma.

The Relationship Between Epicardial Adipose Tissue Thickness and Vitamin D in Patients with Metabolic Syndrome

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Background: Metabolic syndrome is a systemic disorder and manifests a group of conditions such as abdominal obesity, dyslipidemia, hypertension, coronary artery diseases. The importance of epicardial adipose tissue recognized its contribution to inflammation by pro-inflammatory cytokines discharge has been proved. Several investigations were performed on vitamin D receptor in different tissues except bone. In this study the epicardial adipose tissue thickness (EATT) and the levels of vitamin D were measured and compared with healthy control group.

Methods: A total of 148 patients (84 patients who had metabolic syndrome without diabetes and 64 healthy individuals) were enrolled into the study. In all patients, the EATT was calculated by ecocardiography and the level of serum 25(OH) vitamin D was monitored.

Results: It has been observed that the EATT in patients with metabolic syndrome increases significantly compared with healthy control group (p<0.001). No significant difference between patients and control group was found on the levels of 25 (OH) vitamin D (p=0.507). There was no correlation between 25 (OH) vitamin D and the EATT (p=0.622).

Conclusion: We observed that the EATT increased in patients with metabolic syndrome. In contradiction to the literature; the levels of 25(OH) vitamin D has not been found high in patients with metabolic syndrome. The reason of this can be small number of patients in our study. A significant correlation was not found between the EATT and the levels of 25 (OH) vitamin D. Further studies with a larger patient population are required assess the relationship.