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## Relationship Between Obesity-Induced Metabolic Abnormalities and Nutrient Intake: Sex Differences in Japanese University Students

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## Healthcare Delivery and Education

### EXPANDING CLINICAL CONSIDERATIONS FOR PATIENT TESTING AND CARE

#### *Relationship Between Obesity-Induced Metabolic Abnormalities and Nutrient Intake: Sex Differences in Japanese University Students*

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#### MON-LB310

**Background:** Preventive measures and interventions for obesity in young adults are urgently needed. However, evidence-based guidelines for interventional programs in this generation have not been established worldwide because of limited access to data on this group. To establish effective methods of obesity prevention in young adults, we analyzed the relationship between nutrient intake and obesity-related metabolic factors in each body mass index (BMI) group among Japanese university students. **Methods:** A cross-sectional analysis was performed using annual health checkup data, which is conducted mandatory for all students according to the School Health and Safety Act in Japan, from Gifu University's incoming class of 2017. Nutrient intake information was obtained from the brief-type self-administered diet history questionnaire (BDHQ), which has been adjusted and validated for the Japanese population. Inclusion criteria were aged 18-30 years and completed the all examination items including BDHQ. From a total of 1277 students' data, 1202 satisfied and were included in the analyses (participation rate: 94.1%). Nutrition and metabolic data were compared among BMI groups (lean, <18.5 kg/m<sup>2</sup>; normal, 18.5-24.9 kg/m<sup>2</sup>; obese, ≥25.0 kg/m<sup>2</sup>, according to criteria of the Japan Society for the Study of Obesity [2002]) using one-way analysis of variance with post-hoc Tukey honestly significant difference analysis in SPSS software version 24 (IBM Corporation, Armonk, New York). **Results:** The percentage of obesity was 8.1% in men and 1.4% in women, showing a significant difference. Among men, BMI groups were significantly ( $p < 0.05$ ) different in the intake of 11 nutrients which were protein, fat, saturated fat, cholesterol, omega 3 and 6 fatty acids and micronutrients K, Mg, P, Fe, and Zn, significantly high in nine metabolic parameters, which were blood glucose, hemoglobin A1c, uric acid (UA), aspartate aminotransferase (AST), alanine aminotransferase (ALT), systolic and diastolic blood pressure (BP), low-density lipoprotein (LDL) cholesterol, triglycerides (TG) and significant low in high-density lipoprotein (HDL) cholesterol among obese group. Among women, BMI groups were not significantly different in nutrient intake, significantly high in five metabolic parameters, which were UA, ALT, systolic BP, LDL, and TG, and significant low in HDL among obese group. **Conclusion:** This study suggested that the effect of obesity on

metabolic abnormalities in Japanese university students may be more remarkable in men than in women. This sex difference might be partially explained by the significant increase in protein and fat intake in obese men. For women, other factors may contribute to obesity and metabolic abnormalities. Education for appropriate volumes of nutrient intake could be effective in male university students.

## Thyroid

### THYROID CANCER CASE REPORTS I

#### *Coexisting Malignant Struma Ovarii and Cervical Follicular Variant Papillary Thyroid Carcinoma*

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#### SUN-LB81

A 44-year-old woman presented with left lower quadrant abdominal pain for 2 months. Further evaluation revealed a left adnexal mass and she underwent a TAH-BSO. A 12 cm mass arising from the left ovary was resected which on microscopy appeared to be papillary thyroid carcinoma follicular variant arising from a mature teratoma (struma ovarii). A thyroid ultrasound showed two subcentimeter right thyroid nodules without any concerning lymphadenopathy. A total thyroidectomy was then performed to allow her to receive adjuvant RAI. The cervical thyroid pathology showed a 0.6 cm follicular variant papillary thyroid carcinoma with negative margins without angioinvasion, lymphatic invasion or extrathyroidal extension. Thyroid hormone suppression with levothyroxine was started. Preoperatively, thyroglobulin was 1381 ng/ml (nl range 1.3-31.8 ng/ml). After TAH-BSO and thyroidectomy, thyroglobulin was undetectable and so was the anti-thyroglobulin antibody. With an undetectable thyroglobulin level, it was decided not to pursue adjuvant RAI and continue TSH suppression with levothyroxine. Simultaneous existence of malignant struma ovarii and cervical papillary thyroid cancer is rare and has a favorable prognosis compared to metastasis to the ovaries from primary cervical thyroid papillary carcinoma. Due to the rarity of this condition, management is not clear or well supported by evidence. Various approaches are suggested by different authors, including thyroidectomy after resection of malignant struma ovarii to facilitate adjuvant RAI, only performing surgical resection of the ovarian tumor in the absence of high risk features or performing thyroidectomy and RAI only in metastatic or recurrent disease.

**References:** 1. Aaron Leong, Philip J. R. Roche, Miltiadis Paliouras, Louise Rochon, Mark Trifiro, Michael Tamilia, Coexistence of Malignant Struma Ovarii and Cervical Papillary Thyroid Carcinoma, *The Journal of Clinical Endocrinology & Metabolism*, Volume 98, Issue 12, 1 December 2013, Pages 4599-4605. Synchronous malignant struma ovarii and papillary thyroid carcinoma Pablo Fernández Catalina, Antonia Rego Iraeta, Mónica Lorenzo Solar, Paula Sánchez Sobrino DOI: 10.1016/j.endoen.2016.08.006