

Brief Review of Articles in ‘*Endocrinology and Metabolism*’ in 2013

Won-Young Lee

Department of Endocrinology and Metabolism, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea

INTRODUCTION

In 2013, we published many excellent reviews and original articles in the various fields of endocrinology and metabolism. I believe that these publications have enhanced our scientific knowledge and set higher standards for medical care. Readers have access to updated reviews and new, original articles in this journal. I will briefly summarize a number of the excellent articles published in 2013 in ‘*Endocrinology and Metabolism*’ (*Endocrinol Metab*).

ARTICLES ON THYROID DISEASE

Kwak [1] from Yonsei University wrote a review titled “Indications for fine needle aspiration in thyroid nodules.” This review is based on several published recommendations and helps physicians easily understand the factors favoring fine-needle aspiration (FNA) [1]. Chung [2] from the Sungkyunkwan University School of Medicine wrote that “It is very difficult to maintain a stringent low iodine diet (LID) for a longer period of time. A nonstringent, simple LID for only 1 week might be enough for preparation for radioactive iodine (RAI) therapy” in his review entitled “Low iodine diet for preparation for RAI therapy in differentiated thyroid carcinoma in Korea” [2]. The diagnosis and treatment of hyperthyroidism are different according to geographical area. The Korean Thy-

roid Association (KTA) reported a consensus on the management of hyperthyroidism. Moon and Yi [3] summarized the KTA report on the contemporary practice patterns in the diagnosis and management of hyperthyroidism, and compared this report with guidelines from other countries. Lim et al. [4] reported that FNA-proven benign thyroid nodules can experience changes in ultrasonographic features or volume as a natural course. When using the American Thyroid Association recommendation as the criteria for nodule growth, 9% of the nodules increased in volume, 83% were unchanged, and 8% decreased in volume. The shape and echogenicity of the nodules rarely changed. The authors suggested that frequent follow-up ultrasonography is needed for cases with suspicious ultrasonographic findings because of the low malignancy detection rate [4]. The authors of an original article entitled “Expression of thyroid stimulating hormone receptor mRNA in mouse C2C12 skeletal muscle cells” found that the TSH receptor is expressed in a mouse skeletal muscle cell line, but they suggested that the role of TSH receptor signaling in skeletal muscle needs further investigation [5]. Kim et al. [6] analyzed 36 patients who underwent surgery after being diagnosed with papillary thyroid carcinoma (PTC) with lymph node metastasis. They stained primary tumor tissues immunohistochemically with an anti-CD68 antibody and evaluated clinical characteristics according to tumor-associated macrophage (TAM) density. They found TAMs in primary PTC tumors with lymph node metas-

Corresponding author: Won-Young Lee

Department of Endocrinology and Metabolism, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, 29 Saemunan-ro, Jongno-gu, Seoul 110-746, Korea

Tel: +82-2-2001-2579, **Fax:** +82-2-2001-1588, **E-mail:** drlwy@hanmail.net

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tasis, and higher TAM densities were related to larger tumors, suggesting a tumorigenic role of TAMs in human PTCs [6]. Interesting case reports about various thyroid diseases were presented in 2013 issues of 'Endocrinology and Metabolism' [7-15].

ARTICLES ON DIABETES AND OBESITY

Quan and Lee [16] reviewed the role of autophagy in the pathogenesis of diabetes. In their review, "Role of autophagy in the control of body metabolism," they reported that mice with deficiencies in β -cell-specific autophagy show reduced β -cell mass and an insulin secretion defect resulting in hypoinsulinemia and hyperglycemia, but not diabetes. However, these mice developed diabetes when bred with *ob/ob* mice, implying that autophagy-deficient β -cells have defects in coping with elevated metabolic stress due to obesity. These results suggest that autophagy has a role in protecting β -cells and preventing the progression from obesity to diabetes [16]. Choi [17] wrote an excellent review called "Sarcopenia and sarcopenic obesity." Both sarcopenia and obesity are becoming major threats to the aging society. The concept of sarcopenic obesity may help to elucidate the interrelationships between physical disability, metabolic disorders, and mortality in the elderly population [17]. A review article on the relationships between lipoproteins and diabetes was presented by Prof. Barter of the University of New South Wales, Australia. Currently, high density lipoprotein cholesterol (HDL-C) is a topic of great interest. Barter [18] summarized the role of HDL-C in reducing cardiovascular risk and improving glycemic control in type 2 diabetes in his paper "High density lipoprotein: a therapeutic target in type 2 diabetes." Cho et al. [19] reviewed current clinical data related to each class of glucagon-like peptide 1 analogs and highlighted several important efficacy and safety issues. Bae et al. [20] reported a cross-sectional study in 9,029 subjects without diabetes, which showed that serum albumin level can be related to insulin resistance index after adjustment for multiple factors. The title of their original article, published in March 2013, is "Association between serum albumin, insulin resistance, and incident diabetes in nondiabetic subjects" [20]. The authors did not study the mechanism, but recent data show that anti-oxidant and anti-inflammatory properties of serum albumin may have an independent protective effect on incident diabetes, as observed in the association with carotid atherosclerosis and cardiovascular mortality. In the original article titled "The relationship of body composition and coronary artery calcification

in apparently healthy Korean adults," Yu et al. [21] studied the relationship between waist-to-hip ratio (WHR) and coronary artery calcium score (CACS) assessed by multidetector computed tomography in 945 participants in a medical check-up program. In logistic regression analyses with coronary artery calcification as the dependent factor, the highest WHR quartile showed a 3.1-fold-increased odds ratio for coronary artery calcification compared with the lowest quartile after adjustment for confounding variables. This is a new finding showing a close relationship between WHR and CACS [21]. Seo et al. [22] reported a longitudinal study entitled "Tumor necrosis factor- α as a predictor for the development of nonalcoholic fatty liver disease: a 4-year follow-up study." They reported that higher serum tumor necrosis factor- α levels in subjects without nonalcoholic fatty liver disease (NAFLD) at baseline were associated with development of NAFLD 4 years later. This suggests a pathologic role of inflammation in NAFLD [22].

In 2013, there were two interesting original articles about the association between hemoglobin A1c and cardiovascular disease: "Hemoglobin A1c is positively correlated with Framingham risk score in older, apparently healthy nondiabetic Korean adults" [23] and "A1c variability can predict coronary artery disease in patients with type 2 diabetes with mean A1c levels greater than 7" [24]. The relationship between vitamin D status, obesity, and insulin resistance was investigated by Kang et al. [25] using data from 2,710 individuals aged ≥ 50 years based on national data from a representative sample of Korea National Health and Nutrition Examination Survey IV-2 in 2008. The author of the original article entitled "The impact of different anthropometric measures on sustained normotension, white coat hypertension, masked hypertension, and sustained hypertension in patients with type 2 diabetes" showed the relationships between anthropometric parameters and hypertension in patients with newly diagnosed diabetes. Even in patients with white coat hypertension or masked hypertension, waist circumference and WHR were higher than in normotensive patients [26]. Serum creatinine is a breakdown product of creatine phosphate in muscle. Skeletal muscle is one of the major target organs of insulin action. In the original article entitled "Variation in serum creatinine level is correlated to risk of type 2 diabetes," the authors report an association between serum creatinine levels and an increased risk of type 2 diabetes [27]. Adipocyte-specific fatty acid-binding protein (A-FABP) is a cytoplasmic protein expressed in macrophages and adipocytes. An association of serum A-FABP with fatty liver index as a predictor of NAFLD was covered in the paper

entitled "Association of serum adipocyte-specific fatty acid binding protein with fatty liver index as a predictive indicator of nonalcoholic fatty liver disease" [28]. Cardiac autonomic neuropathy (CAN) and diabetic retinopathy (DR) are the most common complications of diabetes, and represent significant causes of morbidity and mortality in diabetes patients. In the study entitled "Association between cardiac autonomic neuropathy, diabetic retinopathy and carotid atherosclerosis in patients with type 2 diabetes," the authors argue that CAN or DR may be determinants of subclinical atherosclerosis in patients with type 2 diabetes by showing the associations between CAN, DR and mean carotid intima-media thickness [29]. A novel mutation in the von Hippel-Lindau tumor suppressor gene was identified in a patient presenting with gestational diabetes [30]. An interesting case report entitled "Recurrent insulin autoimmune syndrome caused by α -lipoic acid in type 2 diabetes" was included in the fourth issue of 2013 [31].

ARTICLES ON BONE METABOLISM

In the review "Vitamin D status in Korea," Choi [32] reported that the prevalence of vitamin D insufficiency, defined as a serum 25-hydroxyvitamin D [25(OH)D] level below 50 nmol/L, was 47.3% in males and 64.5% in females from The Korea National Health and Nutrition Examination Survey IV 2008. Only 13.2% of males and 6.7% of females had a serum 25(OH)D level greater than 75 nmol/L. In Korea, vitamin D insufficiency was more prevalent in young adults than in elderly people, which is likely to be due to the indoor lifestyle of younger people [32]. Lee et al. [33] wrote a review titled "Epidemiology of osteoporosis and osteoporotic fractures in South Korea." The Korean Nationwide-database Osteoporosis Study (KNOS) was performed through collaboration between the Korean Society of Bone and Mineral Research and the Health Insurance Review and Assessment Service. This review of the KNOS is helpful for the estimation of osteoporosis and osteoporosis-related fracture rates in Korea [33]. Divieti Pajevic [34] summarized novel findings in osteocyte biology in his paper titled "Recent progress in osteocyte research" and discussed future avenues of research. "Age-related changes in the prevalence of osteoporosis according to gender and skeletal site: the Korea National Health and Nutrition Examination Survey 2008-2010" is an interesting original article. In this study, the authors showed the age-related changes in the prevalence of osteoporosis according to gender and skeletal site [35]. An interesting case report entitled "Delayed surgery for

parathyroid adenoma misdiagnosed as a thyroid nodule and treated with radiofrequency ablation" was published in 2013 [36].

ARTICLES ON PITUITARY AND OTHER ENDOCRINE DISEASES

Recent data show that reactive oxygen species (ROS) generation is a by product of substrate oxidation and has a crucial role in modulating cellular responses involved in energy metabolism. Diano [37] elegantly summarized the effect of ROS levels on hypothalamic neuronal function in the modulation of food intake. In her review titled "Role of reactive oxygen species in hypothalamic regulation of energy metabolism" she reported that the increased ROS level in pro-opiomelanocortin neurons is likely to be an important regulator of neuronal activation leading to cessation of feeding, increased energy expenditure supported by increased sympathetic tone in brown fat, and decreased gluconeogenesis and glucose output in the liver [37]. Hong et al. [38] from Yonsei University College of Medicine gave us detailed clinical data on the epidemiology, clinical characteristics, and treatment of acromegaly in Korea with a thorough literature review. Jiang and Zhang [39] from Massachusetts General Hospital and Harvard Medical School wrote an updated review of the molecular pathogenesis of pituitary adenoma, focusing on the role of tumor suppressor genes, oncogenes, and microRNAs. Kim et al. [40] undertook a retrospective study examining several clinical factors, including age, sex, size, location, function, and histological findings, in 348 patients with an adrenal mass found incidentally on computed tomography undertaken in health examinations or for nonadrenal disease. This study is described in a paper titled "Clinical characteristics for 348 patients with adrenal incidentaloma" [40]. An experimental study was reported in a paper entitled "Herpes virus entry mediator signaling in the brain is imperative in acute inflammation-induced anorexia and body weight loss." In this paper, the authors argue that activation of brain herpes virus entry mediator signaling, well known for its role in the development of various inflammatory diseases, was responsible for inflammation-induced anorexia and body weight loss [41]. In the paper entitled "Effects of chronic restraint stress on body weight, food intake, and hypothalamic gene expressions in mice," it was reported that stress can affect body weight and food intake by initially modifying canonical food intake-related genes and then later modifying other genes involved in energy metabolism [42]. The authors

of the paper titled “Glycogen synthase kinase 3 inactivation induces cell senescence through sterol regulatory element binding protein 1-mediated lipogenesis in Chang cells” argue that GSK3 inactivation is an important upstream event inducing SREBP1-mediated lipogenesis and consequent cell senescence [43].

One interesting case report is entitled “Steroid responsive xanthomatous hypophysitis associated with autoimmune thyroiditis” [44]. Other interesting case reports on pituitary, adrenal, and other endocrinological diseases were published in 2013 [45-50].

CONCLUSIONS

All editorials, letters, and responses in 2013 were highly informative for readers. I hope that readers will continue to obtain yet more in the way of valuable information from ‘*Endocrinology and Metabolism*.’

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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