

Editorial

“Globesity” Epidemic

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Obesity is a global epidemic affecting both developed and developing countries. Recent studies report that roughly 500 million adults are obese and 43 million preschool children are overweight or obese worldwide. If the “globesity” epidemic continues, more than 1 billion people will be obese by the year of 2030.

Obesity is a major health problem. Research and study on how to reduce obesity are active and have significant contribution to the issue. Up to the present, we have identified many neurocrine, hormones and microbial factors that can cause obesity. Indeed, cells in the gut can signal the brain through endocrine signals like peptide YY, neuropeptide Y, cholecystokinin, oxyntomodulin, glucagon-like peptide-1, neurotensin and ghrelin. These hormones and neurocrine communicate between the gastrointestinal tract and the regulatory appetite centers in the central nervous system in a ‘gut-brain-axis’. Besides, it is known that stress induces obesity. These endocrine signals may partly explain the mechanistic links between stress and obesity. Many of these endocrines are related to stress. For examples, stress induces ghrelin secretion by activating sympathetic and enteric nervous system, or by stimulating the corticotropin releasing hormone receptor in the gut. The role of cortisol in stress-induced obesity is another interesting topic because strong relationship between the systemic cortisol or stress and obesity or metabolic syndrome has been observed in patients. It is reasonable to postulate that the gut-brain-axis can serve as a target for obesity treatment.

Much recent attention has been focused on the gut microbes which also play a role in obesity. Research studies are actively working on metagenomics and marker-gene analysis to quantify the relative abundance of all microbes in samples. However, these modern metagenomics studies may have technical complications which bias the results. Nevertheless, studies have already demonstrated that obesity is associated with profound microbiota changes. Therefore, factors such as diet that can shape the gut ecosystem will be an interesting subject in the field of obesity. Further studies will definitely suggest how to reduce obesity by manipulating the microbial populations in the gut and this may be another effective way to combat obesity.

Another factor that causes obesity is the methylation of some specific genes. The importance of epigenetic processes in human diseases was first identified in cancers. Nowadays, significant progress has been made to understand the epigenetic effects on obesity in

genome-wide approaches. If these epigenetic markers can be detected at birth, we can probably predict the obesity risk of an individual at a young age and make possible targeted preventive treatments, this may help to reduce childhood obesity.

Obesogens such as the environmental pollutants and contaminants may be the other factors that cause obesity under modernization. The term “obesogens” is first coined by Professor Bruce Blumber at the University of California, Irvine, in 2006 when he discovered tin-based compounds known as organotins predisposed laboratory mice to gain weight. Since then, the roles of obesogens start gaining attention in both academic and policy spheres, and are also acknowledged by the Presidential Task Force on Childhood Obesity and the National Institutes of Health Strategic Plan for Obesity Research.

Obesity is usually associated with insulin resistance and other comorbid conditions. In the past, people believed that obesity caused insulin resistance. Recently, another school of thought suggests that insulin resistance is not the consequence but the cause of obesity. Furthermore, clinical cases on obese patients without insulin resistance or lean people with insulin resistance reflect the complexity in the interplay between obesity and insulin resistance.

Adding further complexity to the picture, obesity is a risk factor for many medical problems. The obesity comorbid conditions include, but not limited to, metabolic diseases like diabetes and hypertension; some cancers; cardiovascular diseases, osteoarthritis, gallbladder disease, sleep apnea and other breathing problems. Furthermore, obesity may associate with pregnancy complications, menstrual irregularities, hirsutism and stress incontinence. Obesity also has a negative psychological impact on the patients. We can now understand why obesity and its comorbid conditions are affecting our quality of life.

On top of the above mentioned obesity-related problems, clinical cases on “normal weight obesity” and “healthy obesity” are emerged. The mechanisms underlying these phenomena may violate many of the pre-established theories.

Dietary control, physical exercise, or medication and weight loss surgery in more serious cases, are currently the principle approaches to reduce obesity. However, owing to the complexity of the obesity issue, indeed, we should start asking ourselves if merely reducing calories uptake can solve the problem. Can a portion-controlled food or a prepackaged entrées help? Which dietary factor causes a bigger problem to obesity that we should reduce its uptake, added sugar or fat? Or should we eat something to increase our metabolic rates to burn the fat instead? Or can we have diet that changes the microbial population and then we just leave these microorganisms to do the job? Or can we reduce obesity in a psychological way by controlling our emotion and hence the endocrine release?.

Doctors, researchers, physicians, dietitians and healthcare professionals are working and helping to reverse the epidemic trend of “globesity”. We, at the *Annals of Obesity & Disorders*, are

also developing this platform for professionals to communicate and to share the most recent advances in all the areas of Obesity. It is our ultimate hope to control and reverse the “globesity” epidemic someday and we can live a healthier life.