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Editorial

The Era of Reducing Sugary Food for Prevention on Life-style Related Diseases

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Historically speaking, medical care has been changed according to the various situation so far. What are the major health problems today in the developed and developing countries? Non-communicable diseases (NCD) and lifestyle related diseases have been the focus for current medical practice [1]. In particular, excessive carbohydrate intake and increased incidence of obesity /diabetes have become crucial problems which must be solved medically, socially and economically [2].

In recent years, people tend to consume more sugary drinks across the world, from the statistics of risk management [3]. The increment ratio was approximately 40% during quarter century, by the calculation of the exposure value and the severity of those risk. As to a systematic review and meta-analysis, the correlation between weight gain and sugar-sweetened drinks was analyzed [4]. As a result, increased prevalence of type 2 diabetes mellitus (T2DM) was revealed, which was independent from the degree of adiposity [5]. Furthermore, higher ratio of hypertensive state and cardio metabolic death were found [6,7]. These tendencies have clarified the influence of sugary beverages on cardiovascular disease [8].

There were a mass study concerning diabetes and cardiovascular diseases. It included about 1.8 million subjects and investigated the influence of sugary drinks to the deaths from cardiovascular diseases and diabetes mellitus [9]. The consumption degree of sugary beverage would be one of the risk factors of life style factors. It contributes much for the increasing of global deaths and disability, which were adjusted life years (DALYs) during quarter century [9].

Furthermore, artificially sweetened drinks have been thought to be the alternative beverage for maintaining the health. As a matter of fact, those beverages showed higher incidence of lifestyle related diseases, such as obesity [10], diabetes mellitus [5], and hypertension [11]. Among them, some of the artificially sweetened beverages seemed to aggravate the glucose intolerance by the mechanism of altering gut microbiota system [12].

With regard to adult obesity as described above, there has been a crucial problem of obesity and overweight since childhood. Childhood obesity has been one of the most challenging public health crises in current period, which affects high-income, middle-income, and low-income countries. According to the statistic report of the World Health Organization (WHO), there were 340 million children and adolescents (5-19 years old) and 41 million children (<5 years old) who has obese or overweight [13].

Generally speaking, childhood obesity can be prevented if some effective management would be given in early stages. Preventive strategies can improve children's health and prevent them from transitioning to obese adults in the future. Furthermore, it is possible to prevent the onset of obesity-related complications such as T2DM, cardiovascular disease and non-alcoholic liver diseases.

The United Kingdom has published a significant report. It was "Prevention Vision for Child Health" in June 2019 [14]. The outlines of policy recommendations and the priorities were described. It will bring the transformation of the health state and well-beings of younger generation. Among lots of proposals, the Royal College of Pediatrics and Child Health (RCPCH) report demands the Government to implement compulsory limits on the amount of sugars. Currently, there is the possibility of the misleading to be labelled as no added sugar, in the case of the baby foods which contain high proportion of fruit and sweet-tasting vegetables.

There is an important section in the United Kingdom, which is Public Health England (PHE). It has proposed a guideline for the foods and drinks aimed at infants and young children, indicating the evidence and opportunities for action [15]. The report was summarized from evidence-based detail review of baby foods and drinks for children of 6-36 months, including the data of 1120 products

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commercially available. The purpose was to develop support for limiting free sugars for baby and infant by RCPCH.

According to this report, there were controversies between previous advice for infant feeding and actual marketing of baby food and drink products. Though some vegetable-based food products show healthy in labels, they actually contain about 50% sugars, which seemed to be confectionary. Furthermore, there were some inappropriate descriptions such as misleading of the product labels, no explanation of feeding instructions, recommendation for snacking between the meals, unbalance of ingredients, and so on. Consequently, it will contribute to the maintenance and promotion of health by gradually spreading suppression of carbohydrate intake for younger people.

On the other hand, what situation has been found concerning the relationship between carbohydrate intake and related diseases in adults? Formerly, calorie restriction (CR) has been used as a nutritional treatment for obesity and diabetes. Later, Bernstein and other investigators introduced low carbohydrate diet (LCD), which has been increasingly recognized and spread in European and North American countries [16].

In Japan, authors and co-workers have launched LCD [17]. After that, we have spread LCD movement medically and socially by many books, workshops and conference presentations through the activity of the Japan LCD promotion association (JLCDPA). Among them, the recommended methods include three kinds of LCD, which is easy for everyone to understand and continue practically. They are petite LCD, standard LCD and super LCD, where the sugar content in the calorie ratio is 40%, 26% and 12%, respectively [18].

We have reported various researches concerning LCD. They include efficacy of ketone diet in LCD, study of physiological role of ketone body in the axis of mother-placenta-fetus-newborn [19], study of diurnal variation of blood glucose and M value, blood glucose and insulin response in 70 g carbohydrate loaded diet.

In summary, this article described the influence of sugary food to lifestyle related diseases such as obesity and diabetes. For adults, the treatment has tended to change from former CR to recent LCD. For children, the intake of sugary food will be suppressed by the proposal and actual practice of PHE and Prevention Vision for Child Health. We expect appropriate education, treatment and prevention activities concerning sugar intake for all age groups in the future. Consequently, medical control of lifestyle related diseases would bring health and happiness to everyone with the philosophy of Dr. Shigeaki Hinohara which has been called as Hinohara-ism [20].

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