



Management of Elderly Patients with Diabetes Mellitus from Patient-Centered Medicine

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Abstract

Diabetes mellitus has been an increasingly important health problem worldwide. In the case of elderly diabetic patients, adequate control of not only glucose variability but also physical, psychological, social, nutritional management would be crucial. Recent important topics include frailty, sarcopenia and locomotive syndrome. From mentioned above, elderly diabetics need patient-centered medicine with bio-psycho-social, leading to satisfactory and significant life.

Keywords

Low carbohydrate diet, Mini nutritional assessment, Type 2 diabetes mellitus, Patient-oriented research, Patient-centered medicine

Abbreviation

LCD: Low Carbohydrate Diet; MNA: Mini Nutritional Assessment; T2DM: Type 2 Diabetes Mellitus; POR: Patient-Oriented Research; PCM: Patient-Centered Medicine

Diabetes mellitus has become more important health problem across the world. Among them, it is not simply a medical problem with excess calories and obesity, but various differences and issues are found in several situation. Even if the value of HbA1c is same, the guidance for standard regular diet is not the same between for the younger group and the elderly group.

From clinical research, evidence-based medicine (EBM) has been known, and patient-oriented research (POR) has been also important as the fundamental concept in ordinary medical practice [1]. Furthermore, patient-centered medicine (PCM) has been in focus as the basal philosophy of medical practice. For the integration of these aspects, POR and PCM have been expected to exist in an appropriate balance.

The author and colleagues have been conducting clinical research on calorie restriction (CR) and low carbohydrate diet (LCD) for Type 2 diabetic patients (T2DM) for long years [2]. Using the meal of CR, we have analyzed the response of blood sugar and insulin to 70 g of carbohydrate intake which is meal tolerance test (MTT) [3]. MTT has been useful and beneficial for speculating the response of glucose and insulin. As regard to LCD, we have analyzed the glucose variability and M value, which could be improved in a short period by application of LCD. From our clinical practice and research, various related factors have been involved in the pathogenesis and management for diabetes in the elderly.

For diabetic patients, proper nutrition is fundamental to

self-care. Its fundamental nutrition guidelines has been common regardless of the age [4]. However, various problems are found in the case of elderly diabetics [5]. Physical problems would include dental impairment, dysphagia, difficulties of taste and smell, gastrointestinal dysfunction and others. From social points of view, some difficulties are observed in going out for shopping, buying food, preparing meals, and leading health-related quality of life. Furthermore, there are possibly influencing diseases such as depression, dementia, mild cognitive impairment (MCI), anorexia nervosa, and so on [6].

Unlike young diabetics, elderly diabetics are important to be assessed whether they have any nutrition problems or not. For that purpose, we can use short nutritional assessment questionnaire (SNAQ) and mini-nutrition evaluation mini nutritional assessment (MNA) in simple and easy way [7].

Previous reports have shown that early screening may

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be necessary, especially for elderly patients with nutritional problems [8]. They include home care residents and patients who were admitted due to acute change. These nutritional assessment can prevent future possible complications. When these evaluation is not conducted before, several problems may occur later, such as various complications, long and frequent hospitalization leading to unnecessary medical expenses [9].

When diabetic patient is more than 65-years-old associated with frailty or locomotive syndrome, adequate meals including enough amount of protein and calories are crucial. According to previous investigations, consuming protein-rich and high energy meal can bring the metabolic status with preventing malnutrition risk and weight loss. Elderly people show less protein intake which is necessary for a day as 0.8 g/kg.

Research group of PROT-AGE recommends more amount of taking protein per day, which are 1.0-1.2 g/kg body weight a day to healthy elder person, and 1.2-1.5 g/kg body weight a day to elder patients having chronic and/or acute diseased states. Furthermore, severe patients with sarcopenia and cachectic elder patients are recommended to take protein more than 1.5 g/kg a day by the nutrition expert professionals [10]. On the other hand, consistent beneficial results were found by giving specific supplemental nutrients, such as creatine, protein supplements and branched-chain amino acids (BCAA) [11].

In the guideline of American Diabetes Association (ADA), the recommendation of nutritional treatment for patients with diabetes would be based on abilities and adequate goals. It also includes the preferences and individualized healthy diet for each patient. With these related factors, applicable eating patterns have to be considered consisting of nutrient-dense and high quality meals. The influencing factors include body weight, blood glucose, blood pressure, lipid profile and diabetic complications [4].

Several recommended health eating patterns are the Mediterranean diet, dietary approaches to stop hypertension (DASH) [12,13], Mediterranean-DASH intervention for neurodegenerative delay (MIND), LCD and plant-based diet (PBD) [14]. PBD is a regimen which encourages whole plant-based foods and discourages meats, dairy products, eggs or all processed/refined foods [15]. PBD was acknowledged as appropriate in medical nutrition therapy for T2DM by the Canadian Diabetes Association (CDA) [16].

For the elderly diabetic patients, there are some other recommendations on the nutrient requirements for the daily meals, such as fibers and liquids. Fiber intake is advised as 25-35 g per day, which is a little more than before. However, we pay attention to increasing fiber in the patients with delayed gastric emptying (gastroparesis). Encouraging fluid intake has been important for preventing constipation, which is often found for older diabetics [17].

One of the most common problem in elder people is the fluid and electrolyte disturbance. Among them, dehydration has to be always prevented [17]. Especially, patients on anti-hypertensives and diuretics are avoided from fluid and

electrolyte depletion [18]. We can reduce such episode and its prevalence by various interventions associated with careful attention [19].

There are some elderly diabetic patients, who cannot achieve good glycemic control by lifestyle modification. In such cases, management would be not strictly continued, but loosely changed for the situation of the patients. We can consider social circumstances, living in home or nursing home, psychological status and can adapt it adequately.

For elderly residents in nursing home, some diabetic patients can maintain stable glucose variability with not diabetic formula but rather regular diet [20]. In some reports, tailored diet to personal preferences, culture and goals can make QOL and ADL better, leading to the daily satisfaction with nutritional status [20].

When treating diabetic patients, adequate management has been different in young or older cases. For community-dwelling elderly diabetics, nutrient-dense diet or protein-rich meal has been indispensable for maintaining health and preventing nutritional problems [21]. Due to some evidence, restricted daily diets could impose increased risks for frailty, sarcopenia and malnutrition [22]. Consequently, we should judge and obtain satisfactory management for elderly diabetic patients with the integration of LCD and CR, as well as POR and PCM.

In summary, diabetic patients are necessary to have adequate nutrition treatment such as LCD and CR. For elderly diabetic patients, not only calorie/carbohydrate but also protein intake should be considered. Based on POR and PCM, judgment can be determined on the axis of bio-psycho-social concept in primary care. The goal can be set to the adequate management contributing to the patient's satisfactory life.

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