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## CLINICAL EFFECT AND RESEARCH OF LOW **CARBOHYDRATE DIET (LCD) FOR OBESITY** AND DIABETES

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here have been various discussion concerning Calorie Restriction (CR) and Low Carbohydrate Diet (LCD) for years. Author and colleagues have treated lots of patients with metabolic syndrome such as obesity and type-2 diabetes mellitus (T2DM) for LCD. We have investigated clinical research related to CR and LCD, including ketone bodies (KB), Morbus (M) value, insulinogenic index (IGI) in the field of diabetes and metabolic medicine. As to clinical effect of LCD for weight reduction, we have data of 2699 cases. Reduction ratio and percentage was that 10% and more than 10% in 25.6%, 5.0-9.9% in 32.0%, 2.5-4.9% in 21.2%, totally 78.8% in 2.5% and more than 2.5%. LCD showed clinical effect in 2 weeks. We have utilized specific protocol with the meal of CR and LCD, in which the content of carbohydrate is 60% and 12%, respectively. Patients were provided CR on day 1, 2 and LCD on day 3-14. Several biomarkers related to glucose variability were investigated and several studies were reported so far. They included daily profile of blood glucose, average blood glucose, M value, triglyceride, HDL-C, LDL-C, RLP-C, atherogenic index (T-C-HDL/HDL), TG/HDL value, uric acid, 3-hydroxybutyric acid (3-OHBA), acetoacetic acid (AcAc), insulinogenic index (IGI) and response of C-peptide for CR meal, and so on. Findings from the effect of LCD are as follows: Subjects were patients with Type 2 diabetes mellitus (T2DM), admitted for 14 days and given diabetic evaluation protocol. Mean HbA1c was 8.0±1.7%. Median data day two vs. four were 208 vs. 147 mg/dL in average glucose, 146 vs. 21 in M value and 123 vs. 94.5 mg/day in urinary C-peptide. Consequently, LCD showed clinical effect of reducing weight and decreasing blood glucose and M value. We will continue and develop clinical practice and research concerning CD and LCD furthermore.

### **BIOGRAPHY**

Hiroshi Bando is a Physician with specialties in diabetes, primary care medicine and life style-related disease. He has over 2000 Japanese publication articles, 30 books, 80 English medical publications, 800 lectures. He was the Chairman of Annual Congress of 8th Japanese Primary Care Association (2017) and Editor of several medical journals on diabetes, endocrinology and metabolism. He has been the Chairman of Shikoku Island division of Integrative Medicine Japan and was the chairman of annual Congress of 9th Japanese Music Therapy Association (2009). He is also a pianist and won the silver prize in 3rd European International Piano Concours in Japan (EIPIC) (2012).

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