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短 報

The Relationship between HbA1c in Borderline Diabetic Patients and Periodontal Diseases

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1 Introduction

Since the 1970 discovery by Cohen,¹ et al. of a severe periodontal complication among diabetic patients, many have reported on the coexistence of these two clinical entities. Genco² investigated the risk of developing periodontal disease in diabetic patients and normal individuals and reported that the risk among the former is about 2.5 times greater. Conversely, there are recent reports describing exacerbation of diabetic conditions caused by periodontal diseases.³ There are active investigations on the relationship between diabetes mellitus and periodontal diseases but little effort has been made to elucidate the relationship between the latter and borderline diabetes. In this study, the relationship was studied focusing on HbA1c, an important indicator for diabetes mellitus, and the extent of progression of periodontal diseases among borderline diabetic patients.

2 Method and Subjects

The subjects, 49 patients (male :10, female 39) who participated in a program to prevent diabetes mellitus (designed for prediabetic patients) exhibited an HbA1c of 5.5 to 6.1% in medical examination of 2004. Blood tests were conducted to determine the HbA1c, blood glucose, and serum lipid levels. For the dental examination, CPI was conducted according to a method proposed by Ainamo, et al.⁴ in which the conditions around 1 or 2 teeth representing each of 6 sections in the oral cavity are rated by employing a numerical system. The test value for each individual was the mean of these scores.

3 Results and Discussion

The results of the hematological tests and the scores from the dental examination are shown in Table 1. A statistically significant positive correlation was noted between the HbA1c content and CPI (CPI was high in those with high HbA1c levels)(Fig.1). Oliver, et al.³ cited the reasons for the progression of periodontal diseases in diabetic patients : vascular changes, neutrophilic dysfunctions, and disturbances in collagen synthesis. They also reported that satisfactory blood sugar control leads to losses of fewer teeth; and the duration

of the diabetic condition is positively related to the risk of developing periodontal diseases. Conversely, Beck, et al.³ stated that the treatment of periodontal diseases results in reductions of the HbA1c level in diabetic patients. As described above, the relationship between periodontal diseases and diabetes mellitus has been investigated from various aspects but few studies have been conducted on borderline diabetic patients. The results of the current study indicated that the HbA1c level is related to the progression of periodontal diseases –even among those patients with borderline diabetes.

Table 1 Main clinical characteristics of the study subjects

Variables	n	Mean ± S.D.
Age (years)	48	62.3 ± 4.0
HbA1c (%)	42	5.7 ± 0.5
Glucose (mg/dℓ)	42	97.1 ± 11.3
CPI	47	1.1 ± 0.8

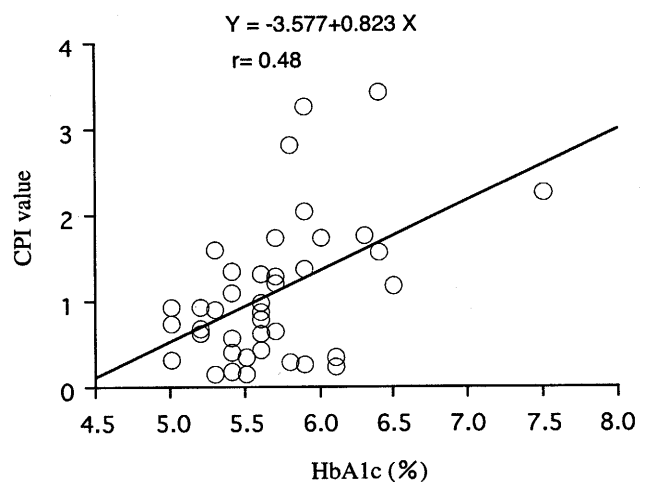


Fig. 1 The relationship between the CPI and the HbA1c

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