

Current status of the new Healthcare Advice System that uses e-mail and electronic data exchange for prevention of metabolic syndrome: A study in Japan

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Abstract and Objective

In April 2008, the Japanese government introduced "Health Checkups and Healthcare Advice with a Particular Focus on the Metabolic Syndrome" for all citizens aged between 40 and 74 years. The new system emphasizes on the requirement of an electronic data exchange based on the standardized XML format (HL7) between hospitals and medical insurance providers. All XML data are finally submitted to the government. In addition, it recommends the use of e-mail. The purpose of this study was to evaluate the effectiveness of the new healthcare advice system by analyzing XML data. Our data shows the difficulty encountered by adopting the standardized electronic data exchange owing to many errors in the XML data (error rate = 75%). We observed that for weight loss, intervention for 6 months was more effective than only 1 counseling session (-2.5 [3.3] kg vs. -1.1 [2.5] kg; $P < 0.01$). In an intervention for weight loss, e-mail was more frequently used than was telephone. However, there were no significant correlations between the supporting methods and weight loss.

Keywords:

Metabolic syndrome, Weight management, e-mail

Introduction

Approximately half the Japanese men develops metabolic syndrome or is regarded as the metabolic syndrome preliminary group. Lifestyle-related diseases are the causes of two-thirds of the number of deaths and account for one-third of health expenditure. Therefore, the Japanese government conducted the Healthcare Advice Reform. The aims of the program are to decrease the incidence of metabolic syndrome and to consequently reduce health expenditure. In this study, we analyzed the XML data and evaluated the effectiveness of the new healthcare advice system.

Methods

Because of errors in the XML data, we could analyze only 458 XML data (43 hospitals) although we collected 1830 XML data. 458 participants were divided into 2 groups. Group-A comprised 281 men and 10 women with a body-mass index

(BMI) of 25 or greater and with at least 2 of the following risk factors of cardiovascular diseases: diabetes, hypertension, and hypercholesterolemia. Group-B comprised 128 men and 39 women with a BMI less than 25 and one of the abovementioned risk factors. Initially, the participants in both the groups received face-to-face counseling. For the participants belonging to Group-A, the following parameters were regularly reported: weight, abdominal circumference (AC), blood pressure, meal situation, and step-count data. They received advice from a public health nurse or dietitian for 6 months through an interview, a telephone, or an e-mail. However, the participants of Group-B did not receive any advice; only evaluation was executed after 6 months. Weight, AC, BMI, and BP were measured at baseline and at 6 months. When statistical significance was indicated on the basis of the results of a paired t test, the differences between the 2 groups were evaluated using Welch's t test.

Results

The average weight loss of the participants belonging to Group-A was 2.5 (3.3) kg ($t = 8.777$, $P < 0.001$), and of those belonging to Group-B, was 1.1 (2.5) kg ($t = 4.131$, $P < 0.001$). The participants in both the groups exhibited a decrease in their BMI (0.863 vs. 0.396, $P < 0.001$). The average decrease in the AC of Group-A participants was 3.0 (3.9) cm ($t = 8.810$, $P < 0.001$); however, a significant decrease in the AC was not observed in the case of Group-B participants. A greater reduction in the weight and BMI was observed in the case of Group-A participants than in the case of Group-B participants ($P < 0.01$). The main supporting method was interview. E-mail was more frequently used than was telephone. However, there were no significant correlations between the supporting methods and weight loss.

Conclusion

The results of our study indicate that for weight loss, intervention for 6 months was more effective than only 1 counseling session. Unfortunately, the best-suited method of intervention remains unclear.