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Job Stressors and Diabetes Development and Related Stress Factors are Correlated with Atherosclerosis

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Abstract

Occupational stress and the onset of diabetes mellitus (DM) have been the subject of numerous previous studies. The Brief Job Stress Questionnaire (BJSQ), which is a common stress test in Japan, has only been used in a few studies to examine occupational stress and DM. Using the BJSQ, the purpose of this study was to ascertain the connection between factors of occupational stress and the onset of DM.

In 2013, we looked at 6,620 male workers in a company with 40 or more employees. The BJSQ was administered at that time. In total, 2,604 people without DM or mental illness but with impaired glucose tolerance were reexamined in 2017 after five years of follow-up. In 2019, the retrospective data analysis was carried out. In 2017, we discovered 241 new cases of DM (diabetes group). Subjects in the diabetes group had significantly lower "skill utilization" levels than those in the non-diabetes group. According to the generalized linear model of the binomial logistic regression analysis, "skill utilization" was associated with the risk of DM development in 2017 (odds ratio, 1.632; 1.061–2.510) is the 95 percent confidence interval. According to our findings, low skill utilization may increase diabetes development risk among male Japanese workers.

Keywords: Type 2 Diabetes Mellitus; Occupational stress; Brief job stress questionnaire (BJSQ); Diabetogenic factor

Introduction

A new overview report ready by the Service of Wellbeing, Work, and Government assistance (MHLW) on the flow wellbeing status in Japan expressed that "way of life related sicknesses represent around 60% of all mortalities and around 30% of every single clinical expense. "1 There has been an increase in the number of people who have diseases that are caused by a person's lifestyle, like diabetes mellitus (DM). The National Health and Nutrition Survey of 2007 provided sobering information, revealing that 13.2 million people could have diabetes mellitus and 8.9 million people had a strong suspicion of having it. Even though that survey was conducted more than ten years ago, the data in the 2017 National Health and Nutrition Survey did not show any significant changes [1].

In this context, the ultimate objective of Health Japan 21 (the second term) is "achieving extension of healthy life expectancy and reduction of health disparities." The basic health promotion policies also include "thorough prevention of the onset and progression of lifestyle-related diseases." The Japanese government launched specific health checkups and health advice in 2008 as part of those efforts to prevent lifestyle-related diseases, particularly in people over 40. In the field of occupational health, these measures are crucial because they target a large portion of the population who are of working age [2].

Measures for mental health are just as important. In light of these social circumstances, the Occupational Safety & Health Program that was developed by the MHLW has specified mental health measures as a priority for the past ten years. The percentage of workers who experience intense stress as a result of their work was 50.6% in 1982, reached 62.8% in 1997, and has since remained around 60%3.

In Japan, occupational health physicians are involved in the health management of workers and provide comprehensive medical care, including preventative measures against diseases caused by lifestyle choices and mental health issues. Despite receiving health advice on DM, some employees fail to make an effort to improve their lifestyle choices because of stress. In addition, there have been a number of instances in which workers in high-stress settings developed early DM symptoms. As a result, it is reasonable to speculate that workplace stress may contribute to the onset of DM [3, 4].

Occupational stress and the onset of diabetes mellitus have been the subject of numerous previous investigations. The Brief Job Stress Questionnaire (BJSQ)8 is a product of a Grant-in-Aid that is used by workers in Japan.

Mean (standard deviation) was used to represent continuous variables. The 2 (chi-squared), Wilcoxon signed-rank, or Mann-Whitney U tests were used to compare the two groups. We used the generalized linear model of binomial logistic regression to calculate the odds ratios and 95 percent confidence intervals (CIs) to identify the BJSQ risk factors for the onset of DM in 2017. After removing factors with multicollinearity from the factors with p values 0.25 in a 2013 univariate analysis of health checkup results and job stressors, the forward selection method was used to create the model. The level of significance was set at p 0.05. The analysis did not include any data that were missing. Version 22.0 of IBM SPSS Statistics for Windows NY, Armonk: For statistical analysis, IBM Corp.) was utilized.

Clinical Background

The 2,604 subjects' mean age was 55.7 (7.8) years; 24.5 (3.5) kg/m2 body mass index; 135 (17) mmHg, systolic blood pressure (SBP);

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diastolic pulse (DBP), 82 (12) mmHg; high-thickness lipoprotein (HDL) cholesterol level, 56. 9(14.4) mg/dL; TG concentration of 165.9 (128.9) mg/dL; 124.2 (29.6) mg/dL of low-density lipoprotein (LDL) cholesterol; HbA1c of 5.8% (0.2%); level of smokers, 35.8%; 18 cigarettes per day are smoked. 63.6% of the population drinks alcohol; estimated quantity of alcohol consumed in a single sitting: 1.7 (0.9) go (one go equals 180 mL of sake, or 20 g of alcohol); 37.0 percent of people who exercised every day; seventy-one percent of subjects have a hobby; estimated 6.2 (0.9) hours of sleep; and an estimated 12.4 (11.1) hours of overtime work per month; 59.0 percent of night workers. The subjects were, according to occupation,: 21.2% are field managers; 16.2% are office managers; 13.9% of station staff; staff for rolling stock, 12.8%; office staff, 11.6%; motorists, 7.8%; track and construction staff, 5.5%; guides, 4.0%; 3.3% of electrical engineering staff; 2.1% secondees; engineers in research, 0.6%; medical personnel, 0.6%; what's more, leaders, 0.4% [5-7].

Several 2013 factors that could contribute to the development of DM in 2017 were also investigated using binomial logistic regression analysis (generalized linear model) to identify the risk factors of the BJSQ for DM. According to the findings of this kind of analysis, "skill utilization" was linked to the risk of DM development in 2017 (odds ratio, 1.632; [8-11] (95 percent confidence interval, 1.061–2.510)

Moreover, we determined the "expertise use" cutoff in 2013 utilizing the beneficiary working trademark bend by the presence/nonappearance of DM in 2017. The low skill utilization group consisted of subjects with a standardized score below 3 (in 1967 men), while the high skill utilization group consisted of subjects with a standardized score below 4 (in 404 men). In 2017, the high skill utilization group had a significantly lower rate of DM development than the low skill utilization group (9.9% vs. 6.4%; p = 0.031) [12-17].

Conclusions

Using the BJSQ, we examined the longitudinal relationship between one company's employees' DM development and job stressors. A favorable cycle for DM control is likely to be created by workplace measures that support mental health. Not only is it necessary to continue promoting comprehensive and advanced health management to comply with laws and regulations, but also to fulfill occupational health physicians' primary role.

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