

学位論文の要旨

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学位論文名 Association Between Sleep Disturbances and Abdominal Symptoms

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論文内容の要旨

INTRODUCTION

Good sleep is considered to be important for quality of life, while a variety of pathological conditions, including mental stress, are known to affect sleep. Patients with gastroesophageal reflux disease (GERD) have been reported to have decreased sleep quality due to heartburn and/or acid regurgitation disturbances. Indeed, treatment of GERD with administration of a proton pump inhibitor (PPI) has been shown to improve not only reflux symptoms, but also the quality of sleep. However, the effects of abdominal symptoms other than heartburn and acid regurgitation on sleep have not been thoroughly investigated. Dyspepsia was recently reported to decrease sleep quality, similar to reflux symptoms, though information regarding the effects of other abdominal symptoms is limited.

To investigate the relationship of sleep disturbance with abdominal symptoms, including reflux symptoms, upper abdominal pain, fullness, constipation, and diarrhea, self-reported questionnaires completed by subjects who underwent an annual health check examination were evaluated.

MATERIALS AND METHODS

This study was approved by the ethics committee of Matsue Red Cross Hospital. All subjects who visited the Department of Preventive Medicine of Matsue Red Cross Hospital for an annual health check from August 2011 to May 2012 were initially enrolled. Those being treated by drugs

that influence abdominal symptoms such as PPIs as well as patients with a history of major abdominal surgery were excluded from analysis. All enrolled were examined using hematological and biochemical blood test, abdominal ultrasonography, upper gastro-intestinal barium meal study or endoscopy, and fecal occult blood test results. Any abdominal findings noted in those examinations were not included in the analysis as they may have been related to abdominal symptoms.

Gastrointestinal symptoms were evaluated using the Izumo scale, a self-reported questionnaire of abdominal symptoms developed and validated by our group. This scale contains items for 15 symptoms in five domains; Reflux, Upper abdominal pain, Fullness, Constipation, and Diarrhea. The answers are rated on a six-point Likert scale from 0 to 5, with higher values indicating a more severe impact on daily functioning. Additionally, daytime sleepiness was assessed by the Epworth Sleeping Scale (ESS), developed to measure subjective sleepiness, which includes eight questions concerning sleepiness during common daily activities such as watching television presented in a self-reported questionnaire. Answers were scored using a four point Likert scale from 0 to 3, with higher values considered to indicate a more severe impact on daily functions.

Statistical analyses were performed using a chi-square test, Kruskal Wallis test, and Mann-Whitney U-test. Multiple logistic regression analysis was also employed.

RESULTS AND DISCUSSION

A total of 2936 subjects (mean age 54.8 ± 0.2 years) were analyzed, of whom 1835 were men. Seventy-five percent of the subjects had no abdominal symptoms, while 25% had at least one symptom. Of the enrolled cohort, 233 (7.9%) with reflux domain symptoms were classified as having GERD-like symptoms, 254 (8.6%) with upper abdominal pain and/or fullness domain symptoms were classified as having functional dyspepsia (FD)-like symptoms, and 528 (18%) with constipation and/or diarrhea domain symptoms were classified as having irritable bowel syndrome (IBS)-like symptoms. There was some overlap among subjects with GERD-, FD- and IBS-like symptoms.

ESS scores for those with GERD-, FD- and IBS-like symptoms were significantly higher as compared to the asymptomatic subjects. In addition, ESS scores of subjects with FD-like symptoms were significantly higher as compared to those with GERD-like symptoms. Also, subjects with multiple abdominal symptoms tended to have higher ESS scores than those with a single symptom.

Using an ESS score cutoff value of 11, subjects were divided into sleep disturbed (≥ 11) and undisturbed (< 11) groups. As compared to the undisturbed group, a higher percentage of those in the sleep disturbed group complained of GERD-, FD-, or IBS-like symptoms, while the number of symptomatic subjects in the sleep disturbed group was more than double that noted in the

undisturbed group. When various factors were evaluated for their effects on sleep disturbance, multiple logistic regression analysis findings showed younger age, as well as presence of FD- and IBS-like symptoms to be significant influencing factors. Furthermore, separation of FD- and IBS-like symptoms into upper abdominal pain, fullness, constipation, and diarrhea clarified that upper abdominal pain and diarrhea each had a significant effect on sleep disturbance incidence.

CONCLUSION

The presence of FD- or IBS-like, or GERD symptoms was found to have a strong relationship with sleep disturbance leading to daytime sleepiness.