



Use of a Fan to Support the Daily Life of Patients with Chronic Respiratory Disease

Hideko Nagumo*

Department of Nursing, The University of Tokyo Health Sciences, Japan

ABSTRACT

The use of fan-assisted air blowing therapy for patients suffering from dyspnea is a topic that is currently attracting a lot of attention. In a study I have been working on since 2020, I investigated the effects of varying the number of blasts performed by the subject on the amount of physical activity as well as dyspnea. The results, as already published in a paper, were not significant. However, as shown in the paper, subjects with a higher number of air blasts also tended to have a higher physical activity level. It is important for patients with chronic respiratory disease to maintain physical activity levels to avoid severe illness. In order to avoid dyspnea and maintain activity levels in an easy way, fan therapy could be applied to these patients.

Keywords: Chronic respiratory disease; Dyspnea; Fan therapy; Palliative care; Physical activity level

DESCRIPTION

The limitations of daily living caused by the symptoms of chronic illnesses deteriorate the quality of life of patients and cause psychological distress. Dyspnea, caused primarily by cardiopulmonary dysfunction, is a painful symptom that forces patients to give up active exercise, reduces the range of motion in daily life, and eventually impairs the physical activities necessary for life. Dyspnea has also been found to be associated with worsening quality of life and frailty in patients with chronic respiratory disease, and its control is a challenge [1,2].

Feeling and Dealing with Breathlessness

Hypoxaemia is not the only cause of breathlessness. In any setting of mild to severe respiratory failure, patients may complain of dyspnea from causes other than hypoxia. There are several words to describe the sensation of dyspnea, but two important points to consider when evaluating Fan therapy as a method of dealing with dyspnea are “air hunger” and “effort to breathe.” Suppose a patient feels a sense of suffocation in a situation where he or she is making a great effort to breathe. If the person feels that he/she has inhaled enough to meet the

effort, the dyspnea is considered to improve.

Furthermore, as the same nerve (the second branch of the trigeminal nerve) senses the nasal cavity and the skin above the lips of the face, it is thought that simply blowing air from a fan on the face may have the same effect as blowing air into the nasal cavity. Thus, several studies have been carried out. Although there have not been many controlled trials of fan-assisted dyspnea relief, the results of a meta-analysis based on published data show that a short duration of blowing on the face produces an immediate improvement in dyspnea. However, there is still little knowledge on the long-term effects.

Discussion on the Results of 3 Weeks of Fan Therapy

The author’s previously published study investigated dyspnea and physical activity before and after three weeks of Fan therapy in two groups of subjects with dyspnea due to chronic respiratory disease, cardiovascular disease or cancer [3]. All subjects were provided with a small fan, and the outcomes were dyspnea measured by VAS: Visual analog scale and physical activity level measured by PASE: Physical activity scale for elderly. The

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Corresponding author Hideko Nagumo, Department of Nursing, The University of Tokyo Health Sciences, Japan, E-mail: h-nagumo@u-ths.ac.jp

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control group was instructed to blow air twice a day on waking and before sleep, while the intervention group was instructed to blow air at least 5 times a day after exercise and whenever they felt dyspnea. Since the study period coincided with the COVID-19 pandemic period, the number of cases could not be obtained as planned, and the results grouped by intention to treat did not prove the efficacy of Fan therapy.

Subjects were instructed on the number of air blasts by group, but as a slightly larger number of subjects violated the protocol, a post-hoc analysis was also conducted by number of air blasts. The results suggested an association between physical activity and the number of air blasts, and the reasons for this are discussed here. This was an open-label study, and subjects received the following explanation prior to participation. Blowing air has been shown to improve dyspnea. This study will examine the duration of that effect.

Of the 17 subjects in the control group who were instructed to blow air only twice a day upon waking and before sleep, 6 subjects violated the protocol (35.3%), and 11 subjects complied. The 6 subjects who reported an actual number of air blasts of 3 or more times per day were considered to have used the fan not only twice in the morning and evening, but also during the day. Looking at the outcomes for these subjects, dyspnea improved for 3 of the 6 subjects and worsened for 3 subjects, and physical activity increased for 5 subjects and decreased for 1 subject. Although the survey did not ask the reason for using the fan more than indicated, it is noteworthy that activity increased for those subjects who utilized the tool more.

In the intervention group instructed to use the fan 5 or more times a day, 4 subjects (25.0%) used it only 2 or less times a day, 5 subjects used it 3 or 4 times a day, and 7 subjects used it 5 or more times a day. In this study, the fan was used for about 3 weeks, and the number of blasts and outcomes were asked about the last week. Subjects in the intervention group who blew less may have simply been too lazy or did not realize the benefits of blowing.

This study did not lead to general findings for people with dyspnea, as the number of subjects was not sufficient. However, few treatments are equally effective in all subjects. Although the data obtained from the present study are not enough, they should form part of a resource for advancing Fan therapy to patients with dyspnoea in clinical practice.

Deliver Fan Therapy to the Target Population Earlier

It is clear from the studies currently reported that the use of fans can provide immediate relief of breathlessness in terminally ill patients with dyspnea. The effects of long-term use on dyspnea, changes in the amount of physical activity, and psychological impact have not yet been clarified. In addition, the results of its use for subjects in all stages of illness, including mild, moderate, and severe, have not been evaluated. How-

ever, there are several reasons why I would recommend the use of air blast for subjects who are not in advanced stages of disease, even if the results have not been fully evaluated. The materials are inexpensive and easily accessible appliances, they do not require a prescription or great cost, they can be easily discontinued and restarted, and they are unlikely to have significant side effects.

The aforementioned Bernabeu-Mora et al. study of frailty in patients with Chronic Obstructive Pulmonary Disease (COPD) reported that patients with worsening frailty over a 2-year period had dyspnea, physical disability, and decreased grip strength [2]. Furthermore, Vaes et al. report that it is important to maintain as high a physical activity level as possible, since reduced physical activity also affects the life expectancy of patients [4]. Certainly, it is important to provide some comfort by offering a fan to terminally ill patients whose disease has progressed to the point where they are unable to perform activities of daily living. But even more important, I believe, is its application to patients who have just been diagnosed with chronic respiratory disease and who find it difficult to adjust their exercise regimen and lifestyle behaviors because of shortness of breath. Ideally, the fan should be used as an accessible way to cope with shortness of breath and to maintain or increase activity in daily life. Efforts are needed to promote the use of fans as well as to investigate, analyze, and clarify their effectiveness.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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