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Original Article

Effects of self-management education on quality of life of patients with chronic obstructive pulmonary disease

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ABSTRACT

Purpose: To explore the effects of self-management education on the quality of life of patients living with chronic obstructive pulmonary disease (COPD).**Methods:** Eighty-four stable or discharged COPD subjects were recruited from April 2011 to January 2012 following treatment at Beijing Hospital or Peking Union Medical College Hospital. Subjects were divided into an intervention group who underwent self-management education or a control group who received usual care without additional education ($n = 42$ each). The St George's Respiratory Questionnaire (SGRQ) was used to measure quality of life at three and six months.**Results:** SGRQ impact domain scores revealed significant differences between the groups ($t = -2.167, p < 0.05$) at three months. SGRQ symptom, impact, activity domain and total scores revealed significant differences between groups ($t = -3.482$ to $-2.530, p < 0.05$) at six months.**Conclusion:** A nurse-led, simple, structured self-management education program provided an effective method for the management of patients with COPD.

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1. Introduction

Self-management refers to strategies by which patients can make therapeutic, behavioural and environmental

adjustments built on health-related knowledge and skills from healthcare providers to improve their ability to care for themselves [1]. When living with chronic diseases, such as chronic obstructive pulmonary disease (COPD), patients should have the ability to care for themselves and live as

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healthy of a life as possible. Current treatments for COPD delay progress; patients live for years with the illness having an effect on mental, physical and social aspects of their lives [2,3]. Health care providers advocate to strengthen the education and management of patients, hoping to improve adherence and ultimately change health outcomes [4]. A number of studies in several countries have evaluated the effect of self-management education on patients with COPD [5–8]. We have performed a nurse-led, controlled clinical trial to assess the effects of self-management education on the quality of life of patients with COPD.

2. Materials and methods

2.1. Subjects

From April 2011 through January 2012, 84 subjects, either recently discharged or currently in stable condition in the outpatient department, were recruited from Beijing Hospital and Peking Union Medical College Hospital by convenience sampling. Subjects were divided into an intervention group who underwent self-management education or a control group who received usual care without additional education. The intervention group and control group included 42 subjects each. All subjects met the following criteria: (1) diagnosis of COPD according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria and have a forced expiratory volume in one second (FEV_{1}) < 70% [2,3]; (2) over 40 years old; (3) able to read and write Chinese words; (4) alert and oriented and available by telephone. Subjects were rejected according to the following exclusion criteria: (1) Any signs, symptoms, or diagnoses of cough, wheezing, asthma, bronchiectasis, pulmonary tuberculosis, pneumoconiosis, congestive heart failure, etc.; (2) suffering from serious disease, such as liver cancer and heart failure; (3) dying or not providing informed consent.

2.2. Study protocol

This study was a non-randomized controlled trial. Subjects were grouped in chronological order with the intervention cohort selected on days 1–15 of a given month and the control cohort selected on days 16–31 of that same month. If the intervention and control subjects were assigned to the same hospital room, one subject had to be excluded according to grouped protocol. All subjects received the St George's Respiratory Questionnaire (SGRQ) questionnaire and a health diary in separate envelopes. Subjects completed the questionnaire and diary individually at three month and six months and returned both items by mail after being reminded by a study investigator.

2.2.1. Control group

Subjects in the control group were treated with usual care and managed by their respective respiratory physician and maintained normal access to provincial universal health plans, which included basic medical knowledge and education supplied by a nurse. However, the investigator did not give these subjects COPD specific knowledge, education or

skills. If subjects or family members consulted health care services by phone, the investigator supported.

2.2.2. Intervention group

Subjects in the intervention group received a simple, structured, disease-specific self-management education plan for six months. Subjects' family members were encouraged to take part. The program focused on self-management ability and was how best to deal with COPD. The program included four methods of self-directed education: Face-to-face teaching, telephone follow-ups, text messaging and diary recording. During forty minute face-to-face sessions, subjects learned respiratory techniques, medication adherence tips, and ways to recognize and prevent exacerbation. In addition, subjects were trained on how to make use of and maintain inhalation devices, breathing techniques, and maintaining proper position. Following these sessions, subjects received a booklet reviewing this information for self-education in the coming months. The intervention group also received standardized 15 min telephone calls at one, two, three and five months post-hospital discharge or doctor visit. The content of these telephone calls were based on the self-administered booklet; aimed to enforce self-management knowledge and skills and integrate those into subjects' daily life. The investigator kept a detailed record of every call. Subjects in the intervention group, or their family members, received a weekly standardized text message following hospital discharge. The contents of these text messages were easy-to-understand and based on the self-management education program. All subjects in the intervention group kept a detailed healthy diary each month, including symptoms consisting of cough, sputum and dyspnoea, self-assessment, and medical history consisting of drug name, dosage, usage and instructions, and physician visit details. The diary was given to the investigator at three and six months.

2.3. Questionnaire

Demographic data such as age, sex, smoking history, and severity by GOLD stage were collected at the baseline. The SGRQ is a disease-specific health-related designed to measure impact on overall health, daily quality of life, and perceived well-being in patients with obstructive airway disease [9]. It includes 50 items and three domains: symptoms (respiratory symptoms), activity (physical activities limited by breathlessness) and impact (effects of disease on life), with Cronbach's α coefficients of 0.74, 0.86, and 0.91, respectively [10]. Each domain scores range from 0 to 100, with higher scores indicating more limitations. A change of four units in the SGRQ score is considered the minimum clinically significant difference [11]. The SGRQ is valid and reliable in the Chinese population [12].

2.4. Ethical considerations

The ethics committee of Peking University Medical College approved this study. All eligible subjects signed written informed consents and had the right to withdraw at any point without any adverse effects in clinical care.

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