Causes for lack of adherence to respiratory rehabilitation programs

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Abstract

The respiratory rehabilitation is a non-pharmacologic therapy recommended by international guidelines for the treatment of symptomatic patients with chronic obstructive pulmonary disease (COPD), but also for other respiratory diseases. The rehabilitation comprises a series of evidence-based medical interventions and is conducted by a multidisciplinary team.

The benefits of rehabilitation are: a better exercise tolerance, a decrease of exacerbation episodes, shorter hospitalization time and an overall improvement of the quality of life. Thus, the patient is given the opportunity to be socially reintegrated. The benefits of respiratory rehabilitation depend on the patient’s adherence to the program. We talk about adherence if the patient believes coincides with the medical advice. A non-adherent patient refuses to participate in a rehabilitation program or fails to complete the program. Non-compliance affects the efficacy and the medical results of the respiratory rehabilitation. We need a method to identify high-risk, non-adherent patients and to find methods to solve this problem.

Keywords: respiratory rehabilitation, non-adherence

Rezumat

Reabilitarea respiratorie este o terapie nefarmacologică recomandată de ghidurile internaționale pentru tratamentul pacienților cu bronhopneumopatie obstructivă cronnică (BPOC) simptomatică. Reabilitarea cuprinde un anumit ansamblu de intervenții medicale bazate pe dovezi și este realizată de o echipă multidisciplinară. Beneficiile reabilitării respiratorii sunt reprezentate de creșterea calității vieții și a toleranței la efort, reducerea numărului de exacerbări, scăderea duratei spitalizării și, cel mai important, de reintegrarea socială a pacientului. Obținerea beneficiilor în urma programului de reabilitare respiratorie este direct proporțională cu aderența pacientului la program. Vorbim despre aderență atunci când viziunea pacientului coincide cu sfatul medical. Pacientul neaderent este acela care refuză includerea în programul de reabilitare respiratorie sau renunță pe parcurs la acesta. Necomplianța are repercusiuni atât asupra eficienței programului, cât și asupra rezultatelor științifice. Este neapărat necesară găsirea unei metode eficiente de identificare a pacienților neaderenți în scopul înălțării acestei probleme.

Cuvinte-cheie: reabilitare respiratorie, neaderență

Background

The respiratory rehabilitation is a non-pharmacologic therapy recommended by international guidelines for the treatment of symptomatic respiratory patients. The rehabilitation is based on a series of evidence-based medical interventions and is conducted by a multidisciplinary team.

The new definition of pulmonary rehabilitation from American Thoracic Society/ European Respiratory Society (ATS/ERS) 2013 is the following: “pulmonary rehabilitation is a comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies, which include, but are not limited to, exercise training, education, and behavior change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviors.”

The main factor which causes lack of physical activity in patients with chronic obstructive pulmonary disease (COPD) is dyspnea, which further causes muscular weakness (peripheral and respiratory muscles) and limited exercise tolerance. These factors lead to the aggravation of dyspnea and physical inability, a vicious cycle being thus created. The negative consequences of the lack of physical activity could be avoided by resuming it progressively, while also initiating physical training under medical supervision.

The rehabilitation program includes physical training, respiratory kinesiotherapy, patient education, nutritional advice, psychological and anti-smoking counseling. The rehabilitation benefits are: better effort tolerance, a decrease of relapses, shorter hospitalization time and an overall improved quality of life. Thus, the patient is given the opportunity to be socially reintegrated.

Although the respiratory rehabilitation benefits are based on a series of evidence, unfortunately, a considerable number of eligible patients never start or fail to complete the program.

Rehabilitation programs

The rehabilitation programs have a variable duration (4 weeks - 6 months), most commonly 8 weeks. The respiratory rehabilitation is mainly based on physical training (endurance and strength training) and respiratory physiotherapy. The additional therapy is represented by nutritional support, psychological counseling and smoking cessation counseling.

There are different types of respiratory rehabilitation programs, depending on location: inpatient, outpatient, home-based and community. The most common type of program is outpatient, with a 2-month duration (for example, 3 sessions per week; one session lasts one hour). But also an intensive program can be available, with 5 days a week (inpatient or outpatient).

Adherence/non-adherence to the rehabilitation program

The central position of adherence in the rehabilitation program is highlighted from the beginning of the ERS/ATS statement (2013). In this new definition, one of the main purposes is “to promote the long-term adherence”.

We talk about adherence if the patient beliefs coincide with the medical advice. The adherence to rehabilitation is the degree to which a patient “sticks” to his rehabilitation program. An adherent patient is a voluntary one, active, open to collaboration. This is the first essential condition to obtain therapeutic results after a respiratory rehabilitation program. From the beginning, the patient must understand that the program is a helpful therapy, that adherence will not be a barrier in quality improvement.

The non-adherence has two components: the first one - patient do not attend the program; and the second one - patient do not complete it.

The causes of non-adherence

Non-attendance

- Barriers to setting up the respiratory rehabilitation (RR) program: the most important barrier is represented by a lack of medical knowledge about what RR represents and the benefits of RR, or the referring doctor thinks that the respiratory rehabilitation is not useful. The doctor’s persuasion skills and more information about what is respiratory rehabilitation can remove this barrier. The aim of a study performed in 2016 in Saudi Arabia was to determine the barriers to setting up the RR program. It was a cross-sectional study and 123 health care providers were recruited (physicians - 44; nurses - 49; respiratory therapists/technicians - 30). For these people, the team used a questionnaire in which the most important question was if they had heard until that time about the respiratory rehabilitation program. Out of them, 3.2% had never heard about respiratory rehabilitation programs before.

The conclusion of this study was that the most important barriers were a lack of hospital capacity (75.6%), the lack of trained health care providers (72.4%), and of funds (48%) [22].

Another qualitative study was published in 2009 and a small number of patients who had been referred to RR program were interviewed. The interview focused on three themes; the third one was called “Attributing value to pulmonary rehabilitation”. At this part of interview the patient’s answer was that the main reason for attending RR program was health care providers influence. The conclusion was that the information and enthusiasm of referring clinician can have a strong positive impact on the adherence [20].

- No hospitals and specialized medical team, due to the limited number of RR centers [22].

- Disruption in daily routine: most of the patients already have a daily schedule and routine represents the central word. They are not willing to lose their time and attend the RR program.

Some patients need to take care of a family member, this also representing a reason for non-attendance [10,11].

- Travel and transportation: the distance from home to the rehabilitation center and the lack of public transport represent a barrier for attendance. A great number of patients are unable to move without help. Respiratory failure and the lack of oxygen therapy during transportation to the RR center are also a barrier [10,11,12,13,16].

A study published in 2007 had the purpose to identify why patients declined to take part to the respiratory rehabilitation program. Thirty-nine patients were interviewed on several themes, among which travel to and location of the RR center. Nineteen patients answered that they were unable to travel alone because they had restricted mobility and they needed oxygen therapy, also they had problems with public transport and they didn’t have a place of parking at the RR center. Also, they said that the distance between home and hospital was too high [18].

- Inconvenient schedule of the RR program: some patients prefer to make exercises in the morning, others in the afternoon, because in the first part of the day they need to take their medicine or they have problems to wake up [16,18].

- Program unlikely to be helpful: the stage of the disease is very severe and the patients do not expect to have benefits, or they think that the program is useless.

Another qualitative study (2007), using home interviews regarding participation and drop out RR programs (12 patients with COPD referred to RR), showed that the first reason to drop out was the difficulty of the program, the second was transportation, the third was that they didn’t notice any improvement and the last were psychosocial factors – e.g., conflict with other patients [11].

- The lack of time: some patients are still working and the RR program overlaps the working hours.

- Financial reasons: patients do not have money for public transport in countries where this transportation is not covered by the insurance.

- Status of marriage: one study showed that married people had a higher ratio of attendance compared with divorced or widowed one.

A study published in ERJ (2009) in New Zealand compared two groups of patients – an adherent one (n=55) and a non-adherent group (n=36) – to find the predictors of non-adherence to respiratory rehabilitation. One of the objectives was to assess marriage status: in the non-adherent group the patients were more likely to be divorced (22% vs. 2%), to live alone (39% vs. 14%) and to live in rented accommodation (31% vs. 6%) [12].

- Other reasons: illness and comorbidities, the lack of social support, current smokers, discussions with other patients who attended the RR program and found it useless. Respiratory rehabilitation is a group activity and many people prefer individual exercise [7,15,17].

Non-completion

- Illness and comorbidities: the most important reason they did not complete the program was exacerbations or other comorbidities associated with COPD [6,19,21].

A study published in January 2017 about the impact of exacerbation on adherence and outcomes of RR program in patients with COPD showed that patients with mild to moderate acute exacerbation did not drop out of the RR program and acute exacerbation did not affect the response to respiratory rehabilitation. On the contrary, patients with severe acute exacerbation dropped out of RR [25].

The purpose of another study (2010-USA) was to determine the impact of COPD exacerbation on RR program adherence. On an 8-week outpatient program, 146 patients started respiratory rehabilitation, and 112 completed it.

Thirty patients had at least one exacerbation during the program, and 10 dropped out the program. The results showed that the exacerbators who completed the program had the same results compared with non-exacerbators. It is better to advise patients to continue the RR program after exacerbation [26].

- Current smokers: the index of packet years represents an increased risk factor in non-completion at active smokers (higher index - higher non-completion) [30].

- Travel and transportation: the same reasons to non-attendance. The patients who usually complete the RR program are living near the RR center.
Other barriers in non-completion are represented by depression and lack of motivation. This type of patient is also less compliant in other health care activities\(^\text{(16,20)}\).

It is difficult to maintain self-motivation when patients have a lack of social support.

The patients who attend the RR program think that the results will appear quickly, but a lack of perceived benefits makes some participants stop the exercises\(^\text{(16)}\).

The difficulty of the RR program (the complexity of procedures) represents another reason for non-completion\(^\text{(10)}\).

**Discussion**

The two components of the non-adherence – non-attendance and non-completion – have for the most part common reasons. All these factors described above must be carefully analyzed in order to find the optimal method to minimize their effects to adherence.

One of the most common reasons is represented by travel and transportation to RR centers. Taking into account that the RR programs are mostly of outpatient type, we think that, in order to increase the adherence, it may be better to use an inpatient program, especially for patients with difficulties in transportation and mobility, with lack of financial support and respiratory failure. The lack of knowledge about what RR represents and about the benefits of RR, or the opinion of the referring doctor that respiratory rehabilitation is not useful, the discussions with other patients who attended the RR program and found it useless are the main reasons for failing to attend RR. This must be combated through better dissemination of knowledge about rehabilitation among health care providers and the general population\(^\text{(9,22)}\).

Also, depression, lack of motivation, current smokers and lack of perceived benefits make patients not to complete the program. Using specific questionnaires to identify these cases may help further to refer the patients to psychological counseling. Currently there are no routine methods of non-compliant patients detection. In 2014, a clinical study showed that Adherence to Pulmonary Rehabilitation Questionnaire (APRQ) may be a valid method to screen adherence in patients with chronic lung disease. This questionnaire is designed on 6 main issues: disease management, treatment benefits, emotional factors, perceived severity of the disease, barriers towards treatment and coping attitude. 109 patients participated in this study, which analyzed the 18 items of APRQ. The conclusion of the study was that APRQ may be a valid method to identify non-adherent patients\(^\text{(40)}\). Non-adherence represents a serious problem that affects the efficacy of respiratory rehabilitation program. Almost 10-32% of patients referred to respiratory rehabilitation programs are non-adherent\(^\text{(41)}\).

**Conclusions**

In conclusion, a high number of respiratory disease patients do not complete or attend the RR program. There is no universally valid method to solve this problem and each case must be carefully analyzed, in order to find personalized solutions to non-adherence effects on the efficacy and the medical results of the respiratory rehabilitation. We need a method to identify high-risk, non-adherent patients in order to find methods for solving this problem. APRQ questionnaire may be a valid way to screen the adherence of the chronic lung disease patients, but other studies are also needed\(^\text{(40)}\).

Another potential tool that can be used is teledermatology, especially in home-based pulmonary rehabilitation. Individual approaches as e-mail or telephones can be used as well\(^\text{(44)}\). It is also important to increase the awareness of the health care providers on the pulmonary rehabilitation (medical conferences, Internet and educational materials).