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REFERATE GENERALE

Pulmonary Rehabilitation in Elderly Patients with Chronic Obstructive Pulmonary Disease

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REZUMAT

Reabilitarea pulmonară la pacienții vârstnici cu bronhopneumopatie cronică obstructivă

Pacienții vârtsnici cu bronhopneumopatie cronică obstructivă (BPOC), neglijați din punct de vedere al reabilitării pulmonare până în urmă cu câteva decade, dispun astăzi de recomandări bazate pe evidențe pentru încadrarea în programele de reabilitare. Nu există limitări importante, cu excepția handicapului locomotor (afecțiune neurologică sau musculoscheletală), a afecțiunilor severe cardiovasculare și a celor cognitive. Rezultatele așteptate sunt multiple, precum creșterea funcției cardiovasculare și a capacității de exercițiu, ameliorarea unor simptome ca dispneea, depresia și anxietatea. Întâlnirea cu oameni asemeni lor în cadrul ședințelor de reabilitare, cu aceleași limitări și concepte de viață, obținerea unui suport de grup și încurajare din partea personalului fac ca pacienții vârstnici cu BPOC să găsească ședințele de reabilitare pulmonară în aceeași măsură plăcute și utile, în ciuda deplasării la distanță de casă și a antrenamentului fizic depus în cadrul acestor ședințe.

Cuvinte cheie: *reabilitare pulmonară, BPOC, vârstnic*

ABSTRACT

Elderly patients with chronic obstructive pulmonary disease (COPD), neglected in terms of pulmonary rehabilitation some decades ago, have nowadays evidence-based recommendations to attend it. There are no serious limitations excepting the locomotor handicap (neurological and musculoskeletal disability), severe cardiovascular and cognitive impairment. Multiple outcomes are expected to show up, as improvement of cardiovascular fitness and exercise capacity, relieving symptoms as dyspnoea, depression and anxiety. Meeting people like them on pulmonary rehabilitation premises, with same limitations and life beliefs, benefiting of group support and staff encouragement, elderly patients with COPD will find out that a pulmonary rehabilitation course might be both pleasant and useful, despite of distance of journey and physical training.

Key words: *pulmonary rehabilitation, COPD, elderly*

Chronic obstructive pulmonary disease in elderly patients – recent data

Chronic obstructive pulmonary disease (COPD) represents a global health problem that will move from being the 12th cause to the 5th cause of disability adjusted-life years lost by the year 2020[1]. It is the single major cause of death with a growing incidence, prevalence (especially in women) and mortality[2]. COPD affects nearly 14 million adults in the USA and has caused more than 130.000 deaths in 2005. Its prevalence increases with age, reaching nearly 14% among those aged over 75[3]. In the United Kingdom (UK), more than 5% of all deaths have been attributed to COPD and one out of eight presentations to the emergency department is due to this condition[4]. The British Thoracic Society estimates that there are more then 600,000 persons with COPD in the UK and their number is increasing year by year[5]; the prevalence of COPD in the UK is of 1.7% in males and 1.4% in females[6]. COPD has become the third chronic disease and produces approximately 26,000 deaths a year in the UK[5]; four out of five deaths due to COPD appear in individuals of 70 years of age or more[7]. According to WHO data, the prevalence of COPD in Romania in people over 35 is 7-8%. It is a common condition in elderly people and its prevalence is increasing in the most elder aged groups[8]; it is the second cause of self-reported disability in seniors[7] and a serious condition of progressive limitation of physical activity[9].

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Due to fatigue, especially to the lower limbs and impairment of left ventricle function, COPD is the most common cause of dyspnoea, decreasing of physical fitness and quality of life[8,10,11]. The patients with acute exacerbations have more visits to the emergency room and hospitalisations, more decline in lung function and a reduced quality of life[4]; the big number of admissions per year includes also the necessity of using the home care services[12]. There is no cure for COPD and there are just a few symptomatic treatments available. There is no other effective intervention but smoking cessation in order to reduce the deterioration of lung function[13,14,15,16]; the disability in COPD appears only with the irreversible lost of pulmonary function[17].

Being a complex and systemic disease, COPD has a great impact over the patients' life. Most of those with a severe form of COPD experiments lots of losses, in terms of workplace, sense of the aim of life, self-esteem, independence and socio-economical status; patients become more and more isolated from friends and society. As in every other chronic disease, the responsibility for the daily care falls over the patient itself and his family. Because of the fear induced by the exertional dyspnoea, the COPD patients lack the trust to perform daily life activities[18].

The role of pulmonary rehabilitation in COPD patients

Pulmonary rehabilitation (PR), a cornerstone non-pharmacological intervention as it is considered nowadays, is a mean of enhancing standard therapy with the primary goal to restore the patient to the highest possible level of independent function. The American Thoracic Society and the European Respiratory Society have recently adopted the definition of PR as following: PR is an evidence-based, multidisciplinary and comprehensive intervention for patients with chronic respiratory diseases who are symptomatic and often have decreased life activities. Integrated into the individualized treatment of the patient, PR is designed to reduce symptoms, optimize functional status and reduce health-care costs through stabilizing or reversing systemic manifestations of the disease. Comprehensive PR programmes include patient assessment, exercise training, education, nutritional intervention and psychosocial support; a successful PR is multidisciplinary, individualized and attentive to physical and social function[19]. Exercise training is a compulsory component; there is no PR without upper and lower limbs exercises.

PR is addressed both to more young and old elderly patients, having been noticed any difference in the abandon rates, adherence to the programme or quality of life improvement[7]. However, even when patients are appropriately selected, the phenomenon of nonadherence to the PR programmes can be met. There have been identified some predictors of poor adherence as being current smokers, divorced, living alone or in rented houses[20], location of the rehabilitation course and travel problems, previous negative experience of the hospital or healthcare, the negative experience of the referring doctor, lack of social support and motivation[5], taking part to research projects, a variable perception of the possible benefits to itself, depression and anxiety[4]. Being physically inactive at admission might also be predictive of drop out by females; some other predictors as degree of breathlessness, frequency of hospital admissions, length of the programme and travel time were reported by the team working in Llandough Hospital, Wales, UK[21]. The perception that PR is associated with gyms and sport appears particularly threatening; a serious barrier to patients who had a poor self image or self-confidence related to exercise might consist in the belief that PR programme is vigorous, floor based and strenuous. Thus, psychological assessment prior to referral to rehabilitation may play an important role in enhancing attendance and ongoing participation[4].

A rehabilitation programme is considered as being successful if meeting realistic aims; in order to accomplish this task, the PR courses must be well tailored[12] and individualized. The best renowned effects of PR over the COPD patients are: increasing the exertion capacity (exercise tolerance), the health status, the health related quality of life, reducing in dyspnoea, anxiety, depression, number of admissions, hospital visits due to the acute exacerbations, use of medical services[22,23], costs for the health care paid by the community[24], length of admissions for respiratory conditions[25]. These programmes can safely run during the period of admission[26], for outpatients[24] and in community hospitals as well[27]. One of the aims of this complex programme of PR is to make a change to the patient's behaviour and attitude over disability and handicap[25].

A multidisciplinary medical team including physician, nurse, occupational therapist, physiotherapist, dietician, pharmacist and social worker[8,9] implements the PR programme. It seems rational to organize the team in respect to everybody's tasks: physical therapy and exercises (breathing and peripheral muscles training) is supervised by the physiotherapist; the smoking cessation strategies are discussed with the specialized counsellor; advise for daily life activities is given by the occupational therapist; the patient and his family education become the duty of physician, respiratory nurse and team's pharmacist; diet information and nutritional advise is given by dietician; psychotherapy and relaxation techniques are part of the psychologist's activities; information about oxygen therapy, assisted ventilation, lifestyle changes and travelling is offered by the doctor and respiratory nurse; benefit advise and social assistance come from the social worker[28,29].

Specifical aspects of pulmonary rehabilitation in elderly with CPOD

Different ages present different abilities and individual needs. This is why it is reasonable to expect that they will respond in different ways to the same physical challenges and they have different informational needs[26]. Elder patients with a similar degree of chronic airways obstruction have bigger limitation to physical effort comparing with young people due to the pulmonary and cardiac age-connected impairments[11], decrease in the peripheral muscles and bones strength and endurance, sensorial impairment, loss of neurological coordination and a higher use of different medications[30].

There were times in the past when the elderly patients were not considered as being fit for PR as being too old, not able to tolerate an aggressive treatment, and that the physiological effects of senescence and comorbidities will limit

their exercise capacity[30]. Old people might live independently or in homes for the elderly; it was recently shown[31] that locomotory, chronic pulmonary, atherosclerosis-related problems and urinary tract infections are higher in the latter. People living in homes for the elderly have complex problems, especially with mobility, confusion, depression and cognition. A brand new study issued in July 2009[32] showed, after reviewing the data coming out from 4150 subjects, that the responders with both severe and nonsevere COPD were less educated, had lower household assets, were more likely to be smokers and had higher chronic disease burden, including hypertension, stroke, heart and psychiatric diseases compared with those without COPD. Adults with cognitive difficulties, if undetected or untreated, have lower adherence to their treatment and follow-up regimens, and consequently may deteriorate more rapidly and have worse health outcomes.

We can speak nowadays about the multiple reasons why aged people would attend the PR programmes: they frequently have an impaired cognitive function, it is sometimes very difficult for them to use the metered dose inhalers, more liable to adverse reactions of medication than young people, can very well benefit on the sessions of drug education, proper use of inhalers and spacers[30]. There are some educational methods specially addressed some to this aged population as: analogies using for helping memory, practising activities with personal relevance, immediate feedback and task referred, repetition of new information in different ways, trying of new behaviours in a safe environment. It seems that a comprehensive rehabilitation programme addressed to in-patients over 80 years of age is considered to be beneficial[26]; a supervised training activity could be very helpful in these patients[30]. PR is an efficient treatment in terms of improving dyspnoea, exercise capacity and quality of life both in young-old and old-old patients[9]. There are some clinical situation limiting the attendance of elderly patients to the PR programmes such as comorbidities, need of oxygen supplementation during exercises, transportation facilities and different social problems[7].

It was recently shown that age does not hamper the response to PR of COPD patients. Di Meo and co-workers have studied 74 old patients aged 65-83 years; the patients underwent a 20-session rehabilitation programme that included training of the upper and lower limbs, respiratory exercises and education sessions. The study underlined that a comprehensive PR programme can significantly improve the six minutes walking test among elderly patients with COPD, even in the presence of chronic hypoxemia. The most physically impaired patients achieve the greatest benefit from rehabilitation, but there is no model accurately predicting the response to rehabilitation[33]. When comparing interval training versus continuous training in patients with COPD, both regimens are well tolerated and able to produce similar improvements in exercise tolerance and quality of life[34]. In older patients with COPD, the addition of strength training to PR traditional programme may have a favourable impact on their functional fitness[35]. The vast majority of COPD patients are either ex-smokers or current smokers; this is why the peripheral arterial disease and the COPD severity itself seem to be important causes of limiting exercise capacity. Therefore, it is rational for COPD patients to be systematically searched and treated for arterial disease[36].

A very recent study suggests that it might be useful to think of yoga-derived breathing when considering COPD patients. During a 30-minute yoga lesson the patients were requested to adopt a slower and deeper breathing and to mobilize in sequence the diaphragm, lower chest and the upper chest; the result was a significant improving in arterial oxygen saturation. The conclusion of the study was that a short-term training in yoga is well tolerated and induces favourable respiratory changes in patients with COPD[37]. Another team used yoga therapy in 2009 in aged COPD patients (mean age 69.9) as a complementary exercise strategy to manage the symptom of dyspnoea. The yoga programme included asanas (yoga postures) and visama vritti pranayama (timed breathing) and after 12 weeks the subjects tolerated more physical activity with less dyspnoea-related distress and improved their functional performance[38].

The modules of self-management are focusing over compliance and maintenance of a good physical condition after rehabilitation. It helps patients to implement the healthy behaviours and strategies learned during rehabilitation (as physical exercises are) in the daily life, aiming to remain physically active and to impede the failure after the end of the programme[39]. The patients are encouraged to perform unwatched exercises at home for at least 20-30 minutes 2-3 times a week[40] and to use rollators. Rollators are designed to help people with COPD to have a better ambulation and steadiness, to find them useful and satisfactory in the daily life. Hill and co-workers found[41] that COPD patients provided with such a rollator were more satisfied with its effectiveness and less satisfied with its weight; rollators were more often used outdoors than indoors. The attendance of group activities reduces the social isolation, while the maintenance groups after rehabilitation helps patients to stay motivated and positive in their attitude towards the disease[42]. It is recommended a monthly follow-up for these patients[8]. It seems that the effects of pulmonary rehabilitation disappear over time, but there is still unclear if they are lasting 12 months[9] or some years[22].

Regardless the important prevalence of the disability related to COPD, most programmes include only young patients and the geriatric physicians refer just a few of them. It is expected to increase the interest of general practitioners, geriatricians and chest physicians for stopping smoking and pulmonary rehabilitation strategies[7]. A very interesting statement was made by the American College of Sports Medicine at the beginning of July 2009 regarding the importance of exercise and physical activity in older adult population[43]. It was underlined that all older adults should engage in regular physical activity and avoid an inactive lifestyle; they might this way experience psychological and cognitive benefits.

No amount of physical activity can stop biological aging, but regular exercise can reduce the development and progression of chronic respiratory diseases. This statement should encourage any chest medicine doctor, including the Romanian specialists, to look for a proper unit and to refer his symptomatic COPD patients to COPD patients to pulmonary rehabilitation programmes. Currently, the PR facilities are just few and confined to universty centres. Ayway, the programme being easy to understand and perform, a short specific training might offer to interested proffessionals the outline and motivation to apply PR in various settings.

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