

MEDICAL EDUCATION ON CHRONIC PULMONARY DISEASES IN CHILDREN AND ADULTS

C Oancea¹, VM Tudorache¹, C Avram²

Abstract

Therapeutic medical education is a treatment method addressed to both patients (adults and children) with chronic diseases and their families, providing the correct self-management in approaching the disease. The primary objective of a medical education programme is the identification by the physician of patient's optimal intellectual level at which he can understand his disease in order to apply correct management. In the case of children, the optimal intellectual level of parents needs to be accurately identified. The physician has also to test patients' knowledge about their disease and to fill the gaps, to raise their awareness about the risk they expose to if they do not take the diseases seriously and to inform them on the available medical resources for patients. Medical education process has to be continuous and to adjust to the personality type of the patients involved.

Key words: medical education, pulmonary disease, courses

Most studies have shown that medical education of patients has a positive impact manifested through the decrease of exacerbations, as well as of visits to physician and to emergency room.

Not all patients and their families want to participate in these courses. This can be explain by a negative experience in a previous course, preconceived ideas, lack of motivation (especially in terminal stages), poor educational level, low IQ, denial attitude, etc. Depending on both clinic capacity and work groups, three types of approach are recommended:

1. Physician ↔ patient
2. Physician ↔ patient + patient's family
3. Physician ↔ patients with the same respiratory diseases

Education of patient together with his family, or people who take care of them (especially in the case of children, etc.) or education of a group of patients with the same lung diseases is recommended. It has been noticed that the degree of receptivity and therapeutic compliance on the long run is higher when using approaches in which patient interrelate and stimulate each other. Didactic technology needs to include a set of forms, methods, means, techniques and

relations which will allow the medical information to be understood optimally by the patient.¹

Ways of learning²

Medical information needs to be diverse, coherent and easy to understand by patients. It can be done by interactive education, using media support (e-learning, visual and audio support, particularly useful in children) and by means of written materials (booklets, flyers). The physician has to identify the best opportunities of communication with the patient and to develop methods to test what he has learnt. These information, as well as the medical terminology well known to the medical personnel might be totally unknown to the patient, which is why this specific vocabulary increases the fear, anxiety distress.³

Which notions should be included in respiratory medical education course?⁴

North American guides recommend a complex theme comprising: notions of lung anatomy and physiology, pulmonary disease pathophysiology, description and interpretation of medical tests, notions of medication and treatment, description of physical exercises technique, description of daily activities and energy preservation techniques, symptoms management, nutrition and diet information and psychosocial management.

1. Lung anatomy and physiology

It is recommended to present elementary notions of anatomy (airways, lung segments) and respiratory physiology. Demonstrative practical models (anatomical models) or posters will be used, if possible, so that the patient to perceive (visualise) the information as well as possible.

2. Pulmonary disease pathophysiology

The causes that led to the disease onset, as well as the pathological changes induced by the disease should be explained. Once the patient understands the disease, his compliance with the treatment will automatically increase.

¹ Department of Pneumology, University of Medicine and Pharmacy, Clinical Hospital of Pneumophthysiology and Infectious Diseases "Victor Babeş", Timisoara, Romania

² Physical Education and Sport Faculty, West University of Timisoara, Romania

E-mail: oancea@umft.ro, voicu.tudorache@yahoo.com, claudiu.avram@gmail.com

3. Description of medical tests

A special time slot will be devoted to the description of medical analyses and tests. Each test or analysis will be explained, the patient being informed on both the normal and his values. A greater importance will be given to explanation of specific test (where the patient will be also educated on how to perform the test correctly), such as: spirometry, P_{lmax}, walking test, effort test. It is important to explain the risks deriving from the performance of these procedures. The following will be shortly and accessibly explained: walking test (of 6 minutes), functional pulmonary tests (spirometry, P_{lmax}, DL_{co}), effort test (cardio-pulmonary), pulsoxymetry (HR, SaO₂), thoracic x-ray, ECG, laboratory tests (haematology, biochemistry, electrolytes).

4. Medication and treatment

For each prescribed medicine it is very important to explain the possible adverse reactions, the interactions with other medicines and the route of administration (in the case of pulmonary pathology, the inhalation route is vital). Longer time has to be dedicated to explaining and verifying the technique to children and elders. Patients with chronic respiratory disease frequently use equipments for improving the respiration. Allot more time for explaining the long term oxygen therapy and how these equipments change the life style.

The therapeutic principles of medicines used and the possible adverse effects, the duration and frequency of treatment, as well as the route of administration (nebulizers, aerosol therapy, sprays, disks, etc) should be clearly and concisely explained.

5. Physical exercises technique

Benefits of respiratory exercises will be explained, insisting on the accuracy of the technique and respiratory times. Bronchial hygiene techniques: cough technique, postural drainage, percussion (manual or mechanically assisted), vibration, PEP, flutter therapy, autogenic drainage.

6. Assessment of daily activity⁴

We have to explain what practically means the preservation of energy, avoidance of activities requiring great energy consumption and therefore increased O₂ consumption, transfer of some assignments to family members etc. The main aim is to identify together with the patient and his family the proper means to limit them and improve the life style. We have also to teach the patient various energy preservation techniques, to give them advices on how to simplify their work, how to manage their time more effectively. It is very important to teach the patient how to recognise and control the panic attacks (to use different relaxation techniques) – extremely important in both children and adults. A vital aspect is to sensitise children's families about the trips and access to the local medical resources.

7. Respiratory techniques

The patient will be taught the respiratory techniques stressing on the execution method until the patient learns it

as an integrative component of the rehabilitation programme. For instance: respiratory clearance techniques (autogenic drainage, flutter therapy, expansion thoracic exercises, etc.), cough training methods, respiratory re-education techniques (airflow directing, re-education of diaphragmatic respiration, control and coordination of respiration, etc.).⁴ Monitoring of these exercises until the patient performs them correctly is very important.

8. Symptoms management including quitting smoking

The patient has to understand the importance of quitting smoking, as well as the pathological effects of this vice. Explain also to the patient the environmental factors role (especially during the cold season-bronchoconstriction); teach the patients to avoid irritating factors (pollution) and to recognise and avoid the main allergens (in-door or outdoor, e.g.: der. p1, der. farinae, pollens, moulds, etc.). The patient should be taught to recognise an exacerbation, to adjust (by increasing the doses) or to use crisis medication. It is important to explain: quitting smoking and avoid being a passive smoker, environmental factors control (clime, irritating factors, and allergens), dyspnoea management, and recognition of respiratory infection symptoms, exacerbations prevention and periodic vaccination.

9. Nutrition and diet

A large part of patients need nutritional equilibration and diet education; for instance, explaining the importance of hyposodic menu for adult cardiac patients. It is critical to identify if patient needs to loose or gain weight (in case of children) or has a special diet and to verify the amount and frequency of food intake. We have to check whether the patient has adequate hydration, and alcohol consumption/restriction.

10. Psychosocial management

Besides the psychotherapy conducted by a psychologist or a trained physician, it is good to also explain patient's responsibilities: to come to the periodic control, to write down and report the symptoms and to follow the therapeutic plan correctly. The chronic patient has a set of questions that preoccupies him, such as: how much time I have left to live? Or how will I live with this disease?

The following themes should be approached: strategy to accept the disease, depression management, control of panic and anxiety, stress reduction, relaxation techniques, support systems (and how all these can improve their life style), patient-medical care provider relationship, change of the addictive behaviour, improvement of memorisation capacity (mental exercises ± medication support).

Finally, we present a model of practical scheme for medical education within a pulmonary rehabilitation programme.⁴

Session 1 – explaining PRP (benefits and programmes types)

Session 2 – explaining medical tests (functional explorations, medical analyses)

Session 3 – lung anatomy

Session 4 – description and explanation of inhalation devices (practical demonstrations)
Session 5 – explaining medication (benefits, adverse effects and medicines interactions)
Session 6 – importance of nutrition (diet or repletion)
Session 7 – description of energy preservation techniques
Session 8 – relaxation techniques and panic control
Session 9 – prevention of infections, environmental factors control
Session 10 – adjustment to disease
Session 11 – description of adaptive equipments and access to medical resources

Conclusions

- The process of medical education in the management of pulmonary disease is permanent and complex.
- Children with chronic pulmonary disease require a special attention and an educational process focused on their cognitive level.
- A great stress must be put on the learning of respiratory technique elements adapted to patient's age.

References

1. C.Docherty, D.Hoy, H.Topp, K.Trinder eLearning techniques supporting problem based learning in clinical simulation International Journal of Medical Informatics, Volume 74, Issue 7, Pages 527-533
2. Jorge G. Ruiz, Michael J. Mintzer, Rosanne M. Leipzig, The Impact of E-Learning in Medical Education, Acad Med. 2006; 81:207–212.
3. The use of elearning in medical education, Kay Mohanna, Postgrad. Med. J. 2007;83;211
4. Guidelines for Pulmonary Rehabilitation Programs, third edition, AACPR
5. Tudor Sbenghe Recuperarea Medicală a Bolnavilor Respiratori, Editura Medicală, 1983.

Correspondance to:

Cristian Oancea,
Department of Pneumology,
University of Medicine and Pharmacy "Victor Babes"
13 Gheorghe Adam,
Timisoara, Romania
Telephone: 0040769221057
E-mail: oancea@umft.ro