Summary Results of Airnergy Study of Chronic Obstructive Pulmonary Disease (COPD) Patients

Are significant effects likely as a result of daily inhalation of activated oxygen by means of administration of Airnergy?

Dr. K. Erpenbach, H. Molitor, K. Visscher
Medical Therapy Centre, Erftstadt

BACKGROUND: in healthy subjects, Airnergy+ activated inhaled air leads to an improvement in the utilisation of the oxygen in inhaled air and to improved peak flow. Because of their worsening dyspnoea and the resulting lack of physical stamina, COPD patients often require very onerous oxygen therapy. The aim of this study was therefore to investigate whether use of Airnergy in COPD patients can bring about an improvement in physical exercise capacity and an improvement in lung function parameters.

PATIENTS AND METHODS: 15 patients underwent a daily 30-minute period of inhalation using the Airnergy Professional Plus for 4 weeks. On days 0 – 14 – 28 and 56, all patients were asked about their walking distance (in metres) and their ability to climb stairs (number of stairs) and lung function tests and serological tests (leukocytes, erythrocytes, Hb, Hct, platelets, CRP, electrophoresis) were performed. Blood pressure was measured daily before commencing inhalation.

RESULTS: over the 4-week course of Airnergy respiratory therapy, walking distance increased 35-fold (from 50 to 1766 m) and the ability to climb stairs more than doubled (from 12 to 29 stairs) in all patients. This effect was maintained even in the treatment-free period for a further 4 weeks. After three months without therapy, all patients had returned to their initial condition, however. FEV1/VC ratio improved over the 4-week treatment period by 8.6% (from 58% to 63%) but then fell back to the baseline level in the follow-up observation period. As regards the serological tests, the brevity of the treatment period allowed a reduction only in inflammatory activity (CRP) of 83% (from 35.9 mg/dl to 4.7 mg/dl). No changes in blood count were observed. As a secondary finding, normalisation of blood pressure was observed during respiratory therapy in all patients. None of the patients complained of exacerbation of their disease at any point during the follow-up observation period.

CONCLUSION: under Airnergy+ respiratory therapy, COPD patients experience a marked improvement in their exercise capacity (walking distance, stair-climbing), an improvement in their lung function and a reduction in the inflammatory activity of the disease. None of the patients experienced exacerbation of the COPD during the follow-up observation period.

Summary Results of Airnergy Study on Healthy Subjects

Changes in levels of neurotransmitters and other stress hormones as a result of inhalation of activated oxygen using the Airnergy Professional Plus

Dr. K. Erpenbach
Medical Therapy Centre, Erftstadt

BACKGROUND: in patients with COPD, Airnergy+ activated inhaled air leads to complete normalisation of blood pressure with a concomitant improvement in sleep hygiene over a 4-week course of respiratory therapy. Regulation of both blood pressure and sleep is dependent on a number of stress hormones and neurotransmitters. The aim of this study was therefore to investigate whether use of Airnergy in healthy subjects can bring about a change in levels of neurotransmitters or other stress hormones. The possible effect of the site of administration (nasal versus oral) of the activated oxygen on the change in hormone levels was investigated at the same time.

PATIENTS AND METHODS: 6 female subjects underwent a daily 30-minute period of inhalation using the Airnergy Professional Plus for 5 days. 3 subjects breathed the activated oxygen through the nose and 3 subjects breathed it through the mouth. Concentrations of the neurotransmitters serotonin, adrenaline and noradrenaline and of the stress hormones TSH, ACTH, cortisol and DHEAS in the serum were determined in each case before and 15 minutes after inhalation of the activated oxygen on day 1 and again 15 minutes after use of the respiratory therapy on day 5.

RESULTS: during the 5-day Airnergy respiratory therapy with activated oxygen, stress hormone levels were reduced by 25% for TSH (from 2.4 to 1.8 mU/L), 33% for ACTH (from 26.8 to 18 pg/ml), 24% for cortisol (from 33.6 to 25.7 µg/dL) and levels of the neurotransmitter noradrenaline were reduced by 48% (from 595 to 311 ng/L) in all the subjects. The counter-stress hormone DHEAS and the neurotransmitters serotonin and adrenaline remained unchanged in the overall evaluation of the subjects. If the subjects' results are considered separately by site of administration, the changes in the nasal inhalation group (IN) are more marked than those in the oral inhalation group (IO). TSH fell by 31% (IN) versus 14% (IO), ACTH by 30% (IN) versus 35% (IO), cortisol by 26% (IN) versus 21% (IO) and noradrenaline by 48% in both groups. Differences between the groups were evident with the hormones DHEAS, adrenaline and serotonin. DHEAS increased by 7% (IN) and fell by 6% (IO), adrenaline fell by 14% (IN) and rose by 12% (IO) and serotonin rose by 8% (IN) and fell by 13% (IO). Side effects were not reported during the study by any of the subjects.

CONCLUSION: during nasal inhalation of activated oxygen with Airnergy+ respiratory therapy, healthy subjects experience a marked improvement in their hormonal preparedness for stress (improved thyroid function, falling cortisol/adrenaline/noradrenaline, rising DHEAS/serotonin). The substantial fall in noradrenaline levels also explains the normalisation of blood pressure observed in COPD patients under Airnergy respiratory therapy.