

DRY SODIUM CHLORIDE AEROSOL IN REHABILITATION OF PATIENTS WITH COPD

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Introduction

Management of COPD involves optimising medical therapy, commencing smoking cessation and participating in pulmonary rehabilitation (RT). Recently, there has been interest in ways of involving physical methods to RT.

Dry sodium chloride aerosol (DSCA) is the main acting factor of the speleotherapy (salt cave therapy) and halotherapy (therapy in a controlled air medium which saturated with dry salt aerosol). DSCA is characterized with physical properties, differing from those of the saline aerosols.

Our previous studies demonstrated that DSCA possessed anti-inflammatory activity in the respiratory tract, mucoregulating action. It enhances drainage of the bronchi, activates alveolar macrophages, improves biocenosis and local humoral immunity.

Aim of the study

The main objective was to estimate the efficacy of inhaled dry sodium chloride aerosol (DSCA) in rehabilitation therapy (RT) of patients with COPD.

Methods

It was double-blind placebo study. 72 patients (pts) with moderate and mild stage of COPD were recruited. They were randomized in 2 groups - interventional group (IG) (21 m, 18 f, 60.3±10.8 yrs) and control group (CG) (22 m, 11 f, 58.5±8.9 yrs). All patients received RT: daily procedures of chest massage, light radiation, physical exercises. Pts of IG were treated with the DSCA (45 min twice a day for 14 days). (Fig.1).

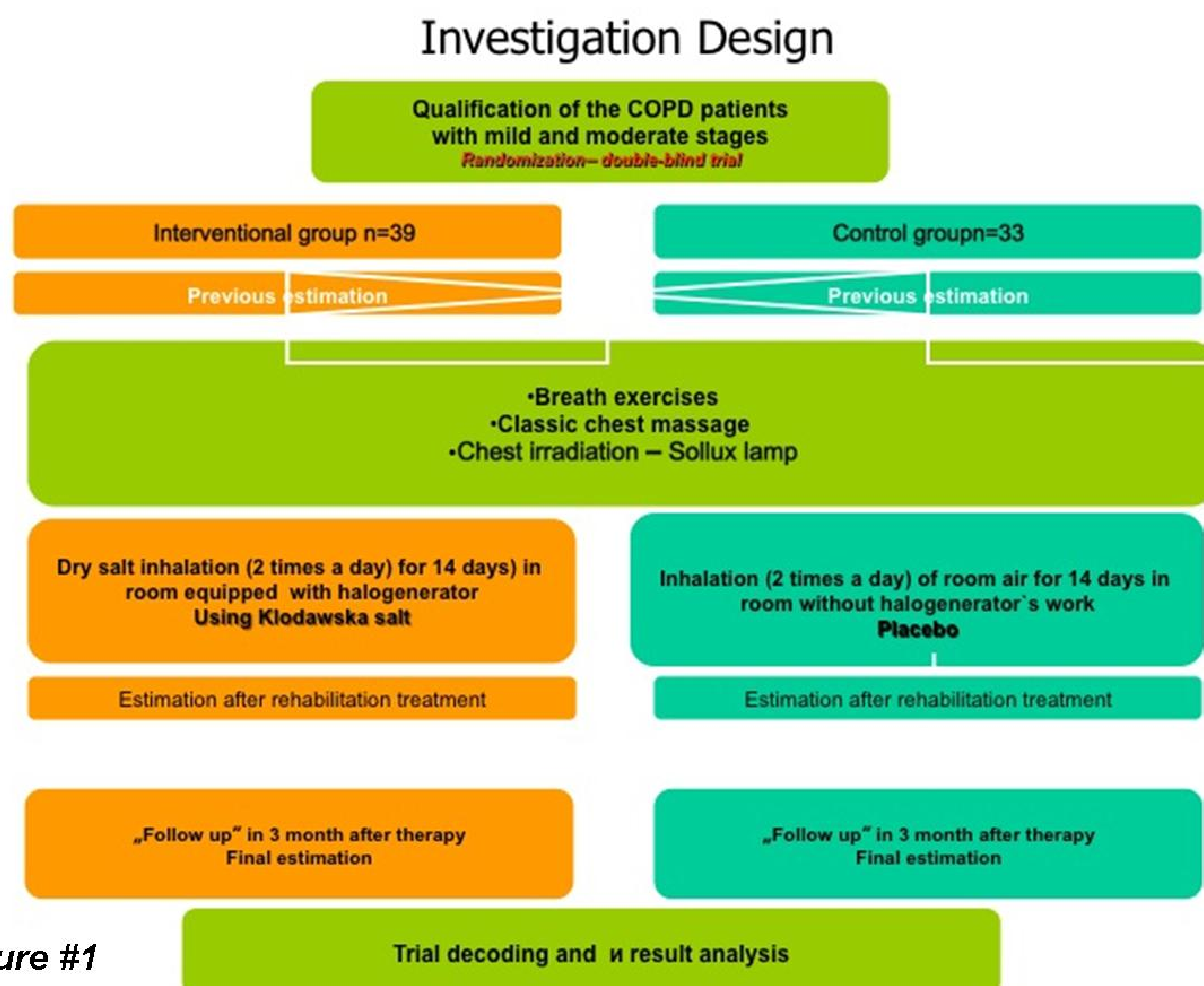


Figure #1

DSCA containing particles with size of 1-5 µm and level of mass concentration in the room of 10-15 mg/m³ (fig 2.) was produced by halogenerator GDA-01.17 (Halomed, Lithuania). CG received placebo (inhalations with room air) instead of DSCA.

Clinical, functional parameters and measures of health-related quality of life (HRQL) by SF-16 and LCQ (10 items) were estimated after RT procedures and in 3 months.

Modalities of dry sodium chloride aerosol at COPD rehabilitation programmes

Density range of dry sodium chloride aerosol 10-15 mg/m³

•Fractional composition of dry salt aerosol:
Respirable particles (1- 5 µm) – more than 80%

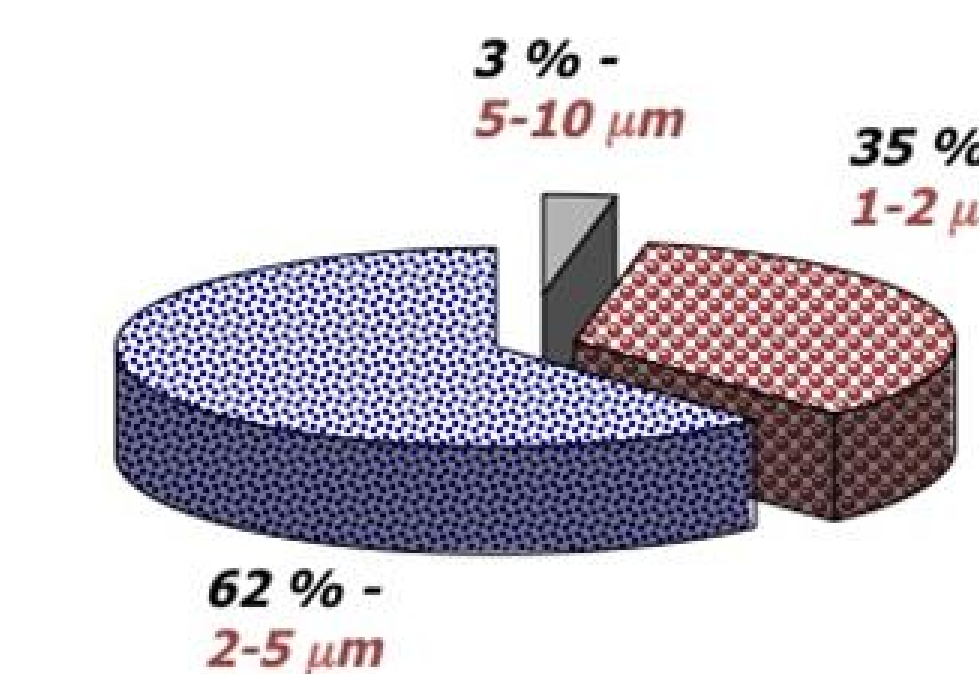


Figure #2

Results

Improvements of clinical symptom scores were observed in the both groups after the course of RT (p<0.05), but in 3 months positive effect was noticed only in IG (before-13.8±5.4, after RT- 9.1±4.9, in 3 months -9.6±4.3, p<0.05). Measures of LCQ were changed significantly after RT only in pts of IG, received DSCA (35.2±5.2 and 52.4±6.3, p<0.05).

Positive changes of physical functioning measures (SF-16) were observed in IG and CG groups after RT, but they have been kept till 3 month only in IG.

Conclusions

Application of inhalations of DSCA on the background of the RT in pts with COPD renders to positive effect.

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22nd ERS Congress, Vienna, Austria
September 1-5 2012, P3549