



Long-term oxygen therapy in chronic respiratory failure: A Multicenter Italian Study on Oxygen Therapy Adherence (MISOTA)

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KEYWORDS

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Summary

Background: The adherence to the prescribed oxygen therapy is difficult to obtain for patients on long-term oxygen therapy (LTOT). There is little information on the modalities of oxygen utilisation for patients on LTOT who are using liquid oxygen in real life.

Study objective: Evaluation of the behaviour and the knowledge regarding LTOT in a large group of patients mainly using liquid oxygen.

Design and setting: Questionnaire administered to consecutive outpatients on domiciliary LTOT for at least 6 months referring to one of 20 clinics throughout Italy. Blinded to this result, the physician who cared for the patient completed another questionnaire.

Results: We evaluated 1504 patients (mean age 71.6 years; males 64%; 74% suffering from COPD). Most respondents (93%) used liquid oxygen with mobile device. Fifteen per cent of patients had a prescribed length of oxygen therapy less than 15 h/day; 21% reported to practice oxygen for less than 15 h/day. Patients reported using

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oxygen for less hours than had been prescribed during the day at rest ($P = 0.02$, $k = 0.80$) during exercise ($P = 0.002$, $k = 0.72$) and at night ($P = 0.0036$, $k = 0.77$). There was no difference between the flow prescribed by the physician and that known and practised by the patient at rest or during sleep; during exercise the flow reported by patients was lower than that prescribed by the physician. Patients used in the night but not at rest or during exercise, a lower level of oxygen flow than what they knew had been prescribed. Fifty-five per cent of patients received indications to modify the oxygen flow in the various situations of life. Liquid oxygen was almost always useful to decrease breathlessness. Most (84%) patients possessed a mobile device, but only 40% declared they used it daily, 'shame' being indicated as the principal barrier. On the physicians' side, we found that the criteria used in prescribing did not always correspond to evidence-based recommendations.

Conclusion: The widespread use of liquid oxygen did not automatically assure optimal adherence to the prescribed treatment as regards times and modality of oxygen use. A better education of patients, relatives, and the general public, as well as increased self-assessment on the part of health caregivers would improve the practice of LTOT in Italy.

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Introduction

Long-term oxygen therapy (LTOT) has been widely practised in Italy as well as in other western countries for many years, on the grounds of its proven demonstrations of efficacy acknowledged by the scientific community.^{1,2} Recently its value has been confirmed in the joint statement of leading international Scientific Societies of Respiratory Medicine.³ LTOT is effective on survival if the supplements of oxygen useful to maintain the arterial oxygen tension (PaO_2) above 8 kPa are administered for at least 15 h/day.^{1,2} LTOT is very compelling for patients. Since its first demonstration of efficacy, the adherence to the prescribed oxygen therapy resulted a problem for patients on LTOT.¹ The largest information on the adherence to LTOT comes from countries,⁴⁻⁷ where most patients were using gaseous oxygen and concentrators. As many patients on domiciliary LTOT go outside the house, the use of liquid oxygen, ideally suited for the easy filling of portable systems at home, could possibly improve compliance to the prescribed treatment.^{8,9} Effectively, some studies have shown that selected patients use liquid oxygen longer than gaseous oxygen.^{9,10} However, due to its extensive cost, the generalised diffusion of liquid oxygen remains uncommon, although increasing, in most western countries.

The peculiarity of the Italian situation is that almost everywhere exclusively liquid oxygen is used, while gaseous oxygen is reserved only for the terminally ill or in temporary situations as dyspnea relief in acute bronchitis exacerbations. Concentrators are rarely used, mainly because the regulations until very recently made such a pre-

scription very complicated under the National Health Service.

The primary aim of this survey was the evaluation of the behaviour and the knowledge about oxygen therapy in a large group of patients on LTOT, mainly using liquid oxygen. Other aims were to evaluate how well the information supplied by prescribing physicians as regards times and modality of oxygen use corresponds to what patients say they have been told. How well LTOT prescriptions correspond to international criteria. How well founded the impressions of many pulmonologists are on the need to give patients on LTOT more ample and detailed explanations in order to improve their understanding and compliance to treatment.

Material and methods

This survey was an open, multicentre, observational study promoted by the Italian Association of Hospital Pulmonologists (AIPO) Educational Group. Twenty chest clinics throughout Italy (listed below) took part in the study, carried out between April 2002 and March 2003. A questionnaire was consecutively administered to all outpatients, reporting to one of the clinics, who had been on domiciliary LTOT for at least 6 months. The participating centres were distributed throughout the whole national territory and included both urban and rural areas; hence they can be considered as representative of the Italian national context. In order to standardise the design of the survey, periodic meetings were held with and phone contacts made to all participants before and during the study period. The questionnaire (see

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