

Effect of intermittent oxygen therapy among COPD patients without severe hypoxemia

This is an excerpt from the full technical report, which is written in Norwegian.

The excerpt provides the report's main messages in English.

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Norwegian Knowledge Centre for the Health Services summarizes and disseminates evidence concerning the effect of treatments, methods, and interventions in health services, in addition to monitoring health service quality. Our goal is to support good decision making in order to provide patients in Norway with the best possible care. The Centre is organized under The Norwegian Directorate for Health, but is scientifically and professionally independent. The Centre has no authority to develop health policy or responsibility to implement policies.

We would like to thank all contributors for their expertise in this project. Norwegian Knowledge Centre for the Health Services assumes final responsibility for the content of this report.

Norwegian Knowledge Centre for the Health Services
Oslo, June 2008

Executive summary

BACKGROUND

Long-term oxygen therapy (LTOT) is prescribed to increase the survival of patients with chronic obstructive pulmonary disease (COPD) and severe resting hypoxemia.

Over the last years the question has been raised whether patients without indication for LTOT might have an effect of intermittent oxygen therapy. Intermittent oxygen therapy refers to the not continuous oxygen therapy; ambulant oxygen during activity and short-burst oxygen (SBOT) before or after activity or at rest. The objective of intermittent oxygen therapy is not increased survival, but symptom relief, better function and increased quality of life.

The pulmonary units in Norwegian hospitals have no standardised guidelines for the use of intermittent oxygen for this patient group.

MANDATE

The main objective of this project is to give contribution to the discussion on specialist guidelines. The Norwegian Respiratory Society asked the Norwegian Knowledge Centre for the Health Services to summarize the documentation of the effect of intermittent oxygen therapy among COPD patients without severe hypoxemia.

METHODS

We performed a search for systematic reviews in the Cochrane database, and a systematic search for new literature in the databases MEDLINE and EMBASE.

RESULTS

We included three systematic reviews and six new randomised controlled trials, which were not included in the reviews.

Acute effect of ambulatory oxygen during exercise tests

COPD patients without hypoxemia have a small effect of oxygen therapy on exercise capacity during exercise tests in a laboratory. The documentation consists of 34 small randomised crossover studies (606 patients) summarized in a systematic review, and of three newer studies.

Long term effect of ambulatory oxygen

COPD patients without hypoxemia do not have documented long-term effect of ambulant oxygen therapy during regularly exercise over time, compared to placebo. The documentation consists of five studies (159 patients). The review showed that oxygen did not give better exercise capacity, health-related quality of life or oxygen saturation. A new randomized controlled trial of ambulant oxygen during daily activities did not show an effect on quality of life.

Acute effect of short-burst oxygen

A systematic review with eight randomised controlled trials indicates that SBOT does not reduce dyspnea among COPD patients compared to placebo, neither before nor after activity. We identified no studies that examined the effect of SBOT at rest.

Long-term effect of short-burst oxygen

We identified only one randomised controlled trial with follow-up of COPD patients given SBOT over time. The availability of SBOT over 6 months among patients with COPD and no hypoxemia at rest did not improve health-related quality of life or reduce acute health care utilisation among the included patients.

CONCLUSION

COPD patients without hypoxemia have a small effect of oxygen therapy during exercise tests in a laboratory compared with placebo. SBOT given before or after activity has no documented effect on dyspnea. The results from the tests carried out in laboratories give limited information on the usefulness of the intermittent oxygen therapy in the regular daily life of the patients or the effects on quality of life.

The documentation indicates that COPD patients without severe hypoxemia undergoing oxygen therapy during exercise training over time do not achieve better exercise capacity or health-related quality of life compared with placebo.

There is limited documentation concerning the long term effect of intermittent oxygen therapy in the home setting.

Further research

There is a need for further research focusing on: the long term effect on quality of life of ambulatory oxygen in the home setting, the subgroups of COPD patients with a possible benefit of ambulatory oxygen, and the effect of various doses of oxygen.

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