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COCHRANE REVIEW SUMMARY

Ambulatory and short-burst oxygen for interstitial lung disease

Atkinson D (2017) Ambulatory and short-burst oxygen for interstitial lung disease. Nursing Standard.

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Conflict of interest

None declared

Online

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Summary statement

The mission of the Cochrane Nursing Care Field (CNCF) is to improve health outcomes through increasing the use of the Cochrane Library and supporting Cochrane's role by providing an evidence base for nurses and healthcare professionals who deliver, lead or research nursing care. The CNCF produces Cochrane Corner columns, summaries of recent nursing-care-relevant Cochrane Reviews that are regularly published in collaborating nursing-related journals. Information on the processes CNCF has developed can be accessed at: cncf.cochrane.org/evidence-transfer-program-review-summaries. This is a Cochrane review summary of: Sharp C, Adamali H, Millar AB (2016) Ambulatory and short-burst oxygen for interstitial lung disease. Cochrane Database of Systematic Reviews. Issue 6. CD011716. doi: [10.1002/14651858.CD011716.pub2](https://doi.org/10.1002/14651858.CD011716.pub2).

Keywords

ambulatory oxygen, Cochrane review summary, hypoxaemia, idiopathic pulmonary fibrosis, interstitial lung disease, oxygen desaturation, short-burst oxygen

Background

Interstitial lung disease (ILD) is a term used for pulmonary conditions that are characterised by varying degrees of inflammation and fibrosis. These conditions can be reversible, but they may result in irreversible fibrosis, which causes an impairment in gaseous exchange caused by alveolar distortion and destruction. For some patients, this results in hypoxaemia both on exertion and at rest. The most common type of ILD is idiopathic pulmonary fibrosis (IPF), which is estimated to affect 15,000 people in the UK, with 5,000 new cases diagnosed each year (Navaratnam et al 2011). Individuals with IPF often experience restrictions in their daily lives as a result of dyspnoea (breathlessness), and the condition has an average survival of three years; this is lower than for many cancers (Sharp et al 2016).

Many people with ILD do not experience hypoxaemia at rest, but rapidly desaturate on exertion, with oxygen saturation levels falling below 90%. This limits their exercise capacity. The effects of this can be countered by the administration of ambulatory oxygen.

The British Thoracic Society (BTS) (Hardinge et al 2015) guidelines recommend that ambulatory oxygen therapy should be offered to people for use during exercise as part of a pulmonary rehabilitation programme, or following a formal assessment where improved oxygenation during exercise has been demonstrated. There are many possible benefits for the use of ambulatory oxygen for those who desaturate during exercise, including: greater utilisation of oxygen by exercising muscles; delayed onset of inspiratory muscle fatigue; and reduction in symptoms of dyspnoea (Hardinge et al 2015). Short burst oxygen treatment is a palliative therapy whereby intermittent supplemental oxygen is administered, usually for short periods (about 10 to 20 minutes at a time). Its purpose is to relieve breathlessness for those who do not meet the criteria for long term oxygen therapy but who are dyspnoeic on minimal exertion despite other supportive therapies.

Nurses should be aware that since the number of people affected by ILD is increasing, it is necessary to advance specialist treatment to improve the quality of life of these individuals, with community respiratory and palliative care teams supporting them in their own homes.

Objectives/Aim

The objective of the Cochrane review was to consider the effects of ambulatory and short-burst oxygen therapy on the exercise capacity, dyspnoea and quality of life of people with ILD, especially those with idiopathic pulmonary fibrosis.

Intervention/methods

The authors conducted database searches of MEDLINE, Cochrane Central Register of Controlled Trials, Embase and the Cochrane Airways Group Specialised Register, up until May 2016. They also searched reference lists, trial registries, grey literature and conference abstracts to identify further studies. The search results were screened by two of the authors independently by title and abstract prior to deciding whether to retrieve an article for further consideration in the study. They recorded their reasons for excluding any study they considered ineligible.

The inclusion criteria were randomised controlled trials (RCTs) and quasi-RCTs compared the effects of ambulatory or short-burst oxygen therapy with those of air administration (placebo) or where no interventions were given. The participants included were adults with ILD who desaturate on exertion. To ensure the studies examined the effects of ambulatory oxygen therapy on individuals with ILD who were normoxic at rest, participants with resting

hypoxaemia and combined pulmonary fibrosis and emphysema were excluded. There were no restrictions on the language of publication.

Results

Three studies were identified that met the inclusion criteria for the review, with a total of 98 participants, all of whom had idiopathic pulmonary fibrosis. All three studies compared the effect of oxygen and air (placebo) on participants during an exercise test, with none of the participants informed if they were receiving oxygen or air. Two of the studies did not demonstrate any benefits to receiving supplemental oxygen on participants' ability to exercise or their symptoms of dyspnoea. One study showed that participants could exercise for longer with supplemental oxygen.

None of the studies considered the effect of oxygen administration on patients' quality of life, survival, and cost of oxygen treatment, or its effects on hospital admissions. Further research is required that focuses on the effect that the administration of ambulatory or short-burst oxygen has on participants' exercise capacity, symptoms of breathlessness and on their overall quality of life.

One area for further research could be to monitor the amount of oxygen administered to participants prior to exertion. This could ensure that they are adequately oxygenated and potentially prevent desaturation during exertion, since this was not addressed in the studies included.

Conclusion

The review did not find any evidence to advocate or refute the use of ambulatory and short burst oxygen for people with ILD. This in part is because of the small number of studies identified and the small number of participants in each study. Further research in this area is required to establish if the effects of ambulatory and short burst oxygen for people with ILD.

Implications for practice

- Nurses require evidence-based research that informs their practice. This review does not provide evidence to advocate or refute the use of ambulatory oxygen. Therefore, it would be prudent to suggest current care in accordance with clinical guidelines should be continued until further evidence becomes available.
- People are living longer with multiple conditions and there is an increased focus on providing care in the community, where appropriate (National Health Service 2014). Therefore, care for people with ILD/IPF is likely to involve community respiratory and palliative care teams supporting them in their own homes.
- Identifying safe and effective measures to improve the quality of life for people living with long-term conditions such as ILD, is a priority for future healthcare provision.

References

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