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ORIGINAL ARTICLE

Efficacy and patterns of ambulatory oxygen usage — experience of a university hospital☆

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Respiratory Failure;
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Patient Compliance;
Quality of Life;
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Abstract
Aims: To determine patterns of ambulatory oxygen (AO) use among patients with chronic obstructive pulmonary disease (COPD) and interstitial lung diseases, and analyze the effects of this therapy on daily activities and quality of life (QoL).
Patients and methods: We included 37 consecutive adult patients on AO by liquid O_2 for more than three months prescribed by hospital pulmonologists. The acute response to O_2 was evaluated through the standardized 6-minutes walk test (6MWT) and the Borg dyspnea scale during the O_2 pre-intervention trial. Time spent away from home, compliance, side effects and QoL (SF-36 v1 questionnaire) were evaluated by a telephone interview during the follow-up period. Time spent away from home and QoL comparisons after and before the intervention were assessed retrospectively.
Results: COPD was the most frequent diagnosis (54%), and 29 (78%) patients were already on long-term oxygen therapy. In relation to the acute response to O_2 evaluated through the 6MWT, there were significant improvements in the distance walked ($p < 0.001$), in resting $SatO_2$ ($p < 0.001$), in minimal $SatO_2$ ($p < 0.001$), and in percentage of desaturation ($p = 0.002$), independently of the diagnosis. No differences were observed in Borg dyspnea scale. AO was used for a mean of 4.1 h/day. Patients spent fewer hours per day away from home after AO treatment (3.5 h vs. 5.0 h, $p < 0.025$). Six patients (16%) were not compliant to the prescription, and 54% mentioned side effects. We verified low scores in almost all of the sub-domains of SF-36 QoL questionnaire, with a significant improvement noted only in emotional role ($p = 0.032$). Improvement in health global state was described by 49% of patients.

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Conclusions: Acute improvement in 6MWT parameters was not predictive of enhancement of outdoor activities and QoL with AO. More detailed studies are needed to achieve evidence based AO benefits.

PALAVRAS-CHAVE
Oxigenoterapia de deambulação;
Insuficiência respiratória;
Doenças intersticiais pulmonares;
Doença pulmonar obstrutiva crónica;
Adesão;
Qualidade de vida;
Abordagem da doença

Eficácia e padrões de utilização da oxigenoterapia de deambulação — experiência de um hospital universitário

Resumo
Objectivos: Determinar os padrões de utilização da Oxigenoterapia de Deambulação (OD) em doentes com doença pulmonar obstrutiva crónica (DPOC) e doenças pulmonares intersticiais, e analisar os efeitos dessa terapêutica nas actividades diárias e na qualidade de vida (QV).
Pacientes e métodos: Foram incluídos consecutivamente 37 doentes adultos sob OD com oxigénio líquido há mais de 3 meses, prescrita por médicos pneumologistas hospitalares. A resposta aguda ao oxigénio foi avaliada através da prova de marcha de 6 minutos (PM6 M) e do grau de dispneia de Borg, durante o teste com oxigénio pré-intervenção. O tempo passado fora de casa, a adesão à terapêutica, os efeitos adversos e a QV (questionário SF-36 v1) foram avaliados através de uma entrevista telefónica durante o período de seguimento. A análise comparativa do tempo passado fora de casa e da QV antes e depois da intervenção foi efectuada retrospectivamente.
Resultados: A DPOC foi o diagnóstico mais frequente (54%), e 29 (78%) doentes encontravam-se sob oxigenoterapia de longa duração. Relativamente à resposta aguda ao oxigénio avaliada através da PM6 M, houve melhoria significativa na distância percorrida ($p < 0.001$), na $SatO_2$ em repouso ($p < 0.001$), na $SatO_2$ mínima ($p < 0.001$), e na percentagem de dessaturação ($p = 0.002$), independente do diagnóstico. Não foram observadas diferenças no grau de dispneia de Borg. A média de horas de uso da OD foi de 4.1 h/dia. Os doentes passaram menos horas por dia fora de casa após tratamento com OD (3.5 h vs. 5.0 h, $p < 0.025$).
Seis doentes (16%) não cumpriram a terapêutica de acordo com a prescrição, e 54% mencionaram efeitos adversos. Relativamente aos subdomínios do questionário de QV, verificaram-se baixas pontuações em quase todos, com uma melhoria significativa observada apenas no desempenho emocional ($p = 0.032$). Uma melhoria no estado global de saúde foi descrita por 49% dos doentes.
Conclusões: A melhoria aguda constatada nos parâmetros da PM6 M não foi preditiva de promoção de actividades no exterior e de melhoria da QV com a OD. São necessários estudos mais detalhados para se constatarem benefícios da OD baseados na evidência.

Background

The benefits of supplemental oxygen use in patients with severe hypoxemia are well established and include increased survival rates,[1] decrease in hospitalizations[2] improved neuropsychological functions,[3] exercise capacity[4] and health related quality of life (QoL).[5] The benefits were has also been found to be in proportion to the number of hours of daily use[3] which justifies the prescription of continuous oxygen therapy. However, the use of oxygen supplementation for such long periods is very demanding, since patients have to be connected to an oxygen supply for all or most of the day, inevitably interfering with their activities, and forcing them to stay at home.

Ambulatory oxygen (AO) consists of oxygen supplementation to patients during exercise and daily activities using a portable device, which means that they are no longer housebound.

Standards of care and guidelines have established criteria for the assessment and prescription of oxygen. In particular, AO therapy prescription is recommended for active patients who are on long-term oxygen therapy (LTOT) for extensive periods and for those that although not eligible for LTOT, desaturate with exercise and show an acute response to oxygen.[6,7] In Portugal the existing guidelines (Circular Normativa da Direcção Geral de Saúde N°: 06/DSPCS de 07/06/2006) define the criteria for LTOT prescription- exercise desaturation is one of them, but the specific indications of when to use AO are not explicit. Despite the benefits of oxygen use in enhancing activity[8] and improving their QoL, patients have shown low tolerance to its use and are poorly compliant.[9] In order to assess the appropriateness of AO therapy, it is important to understand whether patients are in fact using and benefiting from it. The purpose of this study was to determine patterns of AO use among patients with chronic pulmonary disease (COPD)