The prescribing and follow-up of domiciliary oxygen — whose responsibility? A survey of prescribing from primary care

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SUMMARY

Domiciliary oxygen is expensive and is frequently used outside the prescribing guidelines, which include the need for blood oxygen measures, a hospital-based facility. Ongoing prescriptions are generally provided by general practitioners (GPs). A survey in the north-east of England found that the origin of the initial prescription was often obscure and that there was no record of the responsible clinician or of structured follow-up for the majority of patients. Many patients received oxygen outside the prescribing guidelines. There is a need for better organised, conjoint follow-up of patients on domiciliary oxygen.

Keywords: *domiciliary oxygen; primary–secondary care interface; guidelines.*

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Introduction

THE provision of domiciliary oxygen represents a substantial cost. Oxygen may be prescribed for short periods for episodic dyspnoea or for prolonged periods for long-term support of hypoxaemic patients, mainly those with chronic obstructive pulmonary disease (COPD). The United Kingdom (UK) guidelines for the long-term prescribing of oxygen[1] recommend initial blood gas assessment, repeated at least yearly, in those with COPD. Often, this is not adhered to,[2-4] and in particular there is a paucity of data from primary care on the use of oxygen and monitoring arrangements. The aims of this study were to ascertain the origin of the oxygen prescription, the follow-up arrangements, and the extent of adherence to guidelines.

Method

All patients registered in 52 practices in three contiguous primary care trusts (PCTs) in the north-east of England (combined population 410 000) who were receiving home oxygen therapy were identified from prescription reimbursement records and by a search of the practices' computerised prescribing records. Anonymised data were extracted, including the date of first prescription, the origin of the prescription (hospital or general practitioner), the type, duration and dose of oxygen therapy, principal diagnoses, any measures of oxygen saturation (SaO_2, percentage) and arterial blood oxygen tension (PaO_2, kPa) recorded before commencement of therapy, spirometry results, smoking status, review arrangements, and the rates of cylinder usage.

Results

In all, 347 patients were receiving oxygen, with a variation between practices of 0 to 22 patients (0 to 2.6, mean = 0.84 per 1000 patients). The commonest diagnoses were COPD (n = 277 [80%]), heart failure (n = 50 [14%]) and cor pulmonale (n = 41 [12%]). Many patients had more than one diagnosis, and only six (2%) had no recorded diagnosis. The period on oxygen therapy could not be determined in 46 (13%) patients, and in the remainder the median was 2.8 years (range = <1 to 11.8 years). Of those patients with COPD, the originator of the prescription was unknown for 71%, and there was no record of PaO_2 or SaO_2 for 43% of them. Details of review assessments were not available for 73% (Table 1). PaO_2 level was recorded in 115 (42%) patients, and in 48 cases (17% of the total, but 42% of those with a documented reading) this was greater than 8 kPa, indicating that the prescription was issued outside the guidelines of the Royal College of Physicians. The lack of data available meant that in 134 (39%) patients potential adherence to prescription guidelines could not be confirmed.

HOW THIS FITS IN

What do we know?

Domiciliary oxygen represents a substantial cost and it is meant to be prescribed within guidelines relating to blood oxygen saturation and monitoring arrangements.

What does this paper add?

In practice, the origin of the majority of the prescribing could not be identified, indications were unclear, and follow-up plans were not identified. Although oxygen prescriptions are provided by primary care, it was not clear who was responsible for reviewing patients. Greater effort is needed with regard to rationalising the use of domiciliary oxygen and enhancing follow-up.

In patients whose therapy was commenced in hospital, and in whom no follow-up was noted, it was not possible to ascertain whether they had been discharged. The clinicians responsible for the initiation of oxygen and the follow-up arrangements could not be identified from the records except for those under active hospital follow-up.

Discussion

The recording of relevant information in the general practice records of patients receiving home oxygen was haphazard, particularly in relation to commencement guidelines.[1] In 70% of them the origin of the prescription could not be delineated and the clinician responsible for the ongoing care was identifiable in only a small number of the records. Furthermore, in the 30% for whom follow-up arrangements were identified, there was no structured care plan. Measured oxygen values were available for less than half the group, with few assessments before and after therapy. Of the 115 patients with COPD who had PaO_2 values documented, 42% had commenced oxygen, despite an apparently satisfactory level. These findings compare with those of other UK studies suggesting that the situation has not changed over recent years, implying that oxygen is used in patients who are unlikely to receive any objective benefit.[2-4]

From our findings it is likely that most prescriptions were commenced on empirical grounds and, once started, were not seen as a hospital responsibility. There is likely to have been confusion over the roles of the specialist and the GP, which fall into a blurred boundary between primary and secondary care for prescribing of home oxygen. Guidelines make it incumbent that monitoring be provided but, in reality, the task is largely left to primary care, as few hospitals have access to domiciliary monitoring through liaison nurses. The present patients may be receiving an adequate quality of care from their GP but, if so, this is not reflected in our review of their practice notes.

One solution is for PCTs and hospital Trusts to invest jointly in liaison nurses to ensure active follow-up. Recent evidence suggests that hospital-based oxygen therapy clinics[5] and home-care programmes[6] run by respiratory therapists can be cost effective by reducing inappropriate prescribing. These services are appropriate for patients prescribed oxygen on discharge from hospital, and might also be configured for patients whose prescription originates in primary care. In the meantime, regardless of the origin of the prescription, the responsibility for care and costs appears to rest with the GP. There is a need to record clearly why the oxygen was commenced, the identity of the clinician responsible for the patient's care, and for a structured follow-up plan, in order to rationalise prescribing and costs and to ensure quality of care.

Table 1. Domiciliary oxygen use: details of patients with COPD and other diagnoses.

	Number (%) of patients with COPD	Number (%) of patients with other diagnoses[a]
Total	277	70
Age in years at first prescription		
Median	69	63
Interquartile range	62–76	30–71
Origin of oxygen initiation		
Hospital	63 (23)	23 (33)
GP	18 (6)	6 (9)
Not known	196 (71)	41 (59)
PaO_2 recorded	115 (42)	14 (20)
<7.3 kPa	56 (20)	8 (11)
7.3–8.0 kPa	11 (4)	1 (1)
>8.0 kPa	48 (17)	5 (7)
SaO_2 recorded	98 (35)	17 (24)
No PaO_2 or SaO_2 recorded	120 (43)	45 (64)
Spirometry recorded	126 (45)	20 (29)
Smoking status		
Smoker	62 (22)	8 (11)
Not recorded	92 (33)	32 (46)
Method of delivery of oxygen		
Cylinders	197 (71)	49 (70)
Concentrators	45 (16)	8 (11)
Both	35 (13)	13 (19)
Review arrangements		
Hospital	74 (27)	25 (36)
GP	3 (1)	
None	71 (26)	11 (16)
Not recorded	129 (47)	34 (49)

[a]Twelve patients were less than 18 years of age, 58 were adults with diagnoses that included interstitial lung disease (n = 21), cor pulmonale or heart failure (n = 15), 'terminal disease' or 'cancer' (n = 7), 'missing' (n = 6).

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