SHORT REPORT

Elderly people at home disabled by chronic obstructive pulmonary disease

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Abstract

Background: we compared uptake of hospital and community-based support in elderly people disabled by chronic obstructive pulmonary disease (COPD), normal controls (NCs) and patients with Parkinsons disease, stroke, amputation, or arthritis (disabled controls; DCs).

Methods: there were 65 subjects (35 men) aged 70–93 years (mean 78) with COPD, 55 NCs [23 men; age range 71–90 years (mean 78)] and 53 DCs [27 men; age range 70–92 years (mean 78)]. Patients with COPD and DCs were outpatients with Nottingham extended activities of daily living (NEADL) score < 16. NCs came from a community survey. Subjects with COPD were clinically stable. All were cognitively intact.

Results: mean NEADL scores (and range) were: 10.2 (3–15) for patients with COPD, 9.4 (3–15) for DCs (t = 1.14, P = 0.26) and 19.0 (1–21) for NCs. There was no difference in meals-on-wheels, district nurse or hospital or physiotherapy provision between patients with COPD and NCs, but those with COPD received more home care (P < 0.01). DCs received more home care (P = 0.04), more district nurse input (P < 0.001) and more physiotherapy (P < 0.0001) than those with COPD.

Conclusions: despite moderate or severe disability, elderly patients with COPD receive little statutory domiciliary support. Reasons for this need further exploration.

Keywords: chronic obstructive pulmonary disease, disability, elderly

Introduction

Current practice emphasizes community-based care of elderly disabled people [1], with a comprehensive approach to optimize functional ability and improve quality of life [2, 3].

Chronic obstructive pulmonary disease (COPD) is a big problem in old age, producing morbidity, disability and mortality [4–6]. However, little is known about the extent of community provision for elderly people with COPD. Three North American COPD home-care programmes [7–9] reduced hospitalization and improved quality of life. However another US intensive high-cost intervention did not improve activities of daily living (ADL) [10].

There is little information on routine uptake of support services for elderly people with COPD in the UK. We investigated community care service uptake in Central Manchester by elderly patients with COPD, normal controls and elderly disabled controls with similar levels of disability due to arthritides, Parkinsonism, stroke and amputation.

Methods

Subjects comprised 65 (35 men) community-dwelling outpatients with COPD aged 70–93 (mean 78) years. COPD was defined as best 1-s-forced-expiratory-volume (FEV1) <70% of predicted and rising <15% after 5 mg nebulized salbutamol. Subjects with COPD were stable with no medication change or hospitalization for 1 month and were excluded from the study if they had lack of appreciable disability (Nottingham extended ADL score ≥16/21 [11]), terminal illness, psychosis, unstable angina, uncontrolled heart failure, confusion (Abbreviated Mental Test score ≤7/10 [12]) or exercise limitation by non-respiratory disease. The Nottingham extended ADL is valid and sensitive scale in detecting respiratory disability in elderly people [13].
Table 1. Inter-group comparison of Nottingham extended activities of daily living scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean score (and range)</th>
<th>P</th>
</tr>
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<tbody>
<tr>
<td>COPD</td>
<td>10.2 (3–15)</td>
<td>NS²</td>
</tr>
<tr>
<td>DC</td>
<td>9.4 (3–15)</td>
<td>NS²</td>
</tr>
<tr>
<td>NC</td>
<td>19 (11–21)</td>
<td>&lt; 0.0001b</td>
</tr>
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</table>

COPD, chronic obstructive pulmonary disease; DC, disabled control; NC, normal control; NS, not significant.
²COPD vs DC.
²NC vs COPD (t = 9.7) and vs DC (t = 17.0).

Disabled controls were 53 community-dwelling day-hospital outpatients (27 men), aged 70–92 (mean 78) years, with normal lung function. Identical ADL score levels and inclusion/exclusion criteria for clinical stability were used. Normal controls were 55 people living at home (23 men), aged 70–91 (mean 78) years, with normal lung function, no respiratory symptoms and no self-reported disability [14].

All gave witnessed, written, informed consent. The study was approved by local medical ethics committees.

A consultant geriatrician took a history, examined the patient and made physiological measurements. ADL results, demographics and data on family and statutory support were obtained from subjects and carers by a blinded physiotherapist.

Three reproducible readings (±5% FEV₁) were taken on a Compact C spirometer (Vitalograph, Buckingham, UK) and the best recorded. Subjects self-completed Nottingham extended ADL forms.

The data were analysed using the EcStatic programme [14]. Nottingham extended ADL scores were normally distributed in all groups and inter-group differences were examined by unpaired t-tests. Differences in service uptake were examined by χ² tests. (significance ≤5%).

Results

Mean (SE) FEV₁/FVC (forced vital capacity) was 45.5 (1.4)% in subjects with COPD, 71.4 (1.3)% in normal controls and 64.5 (1.8)% in disabled controls. There was no difference in ADL scores between patients with COPD and disabled controls. Normal controls had higher ADL scores than disabled controls and patients with COPD (Table 1).

Table 2 summarizes service uptake. There was no difference in meals-on-wheels, district nurse or hospital/domiciliary physiotherapy provision between patients with COPD and normal controls, although those with COPD received more home care (χ² = 5.41, P = 0.02). In contrast, disabled controls received more home care (χ² = 4.3, P = 0.04), more district nurse input (χ² = 11.2, P < 0.001) and more physiotherapy (χ² = 84.4, P < 0.0001) than patients with COPD.

<table>
<thead>
<tr>
<th>Group</th>
<th>No. (and %), by subject group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>NC (n = 55)</td>
</tr>
<tr>
<td>Home care</td>
<td>6 (11)</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>0 (0)</td>
</tr>
<tr>
<td>District nurse</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Meals-on-wheels</td>
<td>3 (5)</td>
</tr>
</tbody>
</table>

More disabled controls (58%) than patients with COPD (32%) lived alone (χ² = 6.53, P = 0.011). However there was no difference in overall family support (defined as physical assistance with any activity ≥1 per week). Subgroup analysis of those living alone revealed that patients with COPD received less physiotherapy (χ² = 30.1, P < 0.0001) and less home care (χ² = 13.8, P = 0.03).

Further subgroup analysis was performed on the most disabled (ADL = 12) patients with COPD (n = 46) and disabled controls (n = 42). Disabled controls received more district nurse support (χ² = 9.47, P = 0.002) and more physiotherapy (χ² = 65.6, P < 0.0001). Twenty-three of 53 disabled controls (43%) and 48 out of 65 patients with COPD (74%) were admitted to hospital in the previous year (χ² = 10.1, P = 0.002). Nineteen (29%) out of the 65 patients with COPD (but no disabled controls) were admitted ≥4 times. All patients with COPD and disabled controls were under outpatient follow-up.

Discussion

Even the most severely disabled elderly patients with COPD living at home received less statutory support than similarly disabled controls. Support to disabled subjects with COPD was little different from that given to fit, age-matched controls. Reasons for this disparity are unclear. Elderly patients with COPD do not carry a 'badge of disability' (e.g. walking-aid or hemiparesis) which captures physicians' attention, but simple daily activities (e.g. bathing) may take up to an hour [5].

The disparity was not explained by fewer admissions to hospital (giving opportunities for inter-disciplinary assessment) in patients with COPD. A previous study [16] showed service use is partly determined by household composition. In our study, however, differences in support between patients with COPD and disabled controls were still apparent in those living alone.

Many disabled controls attended day-hospital and thus represent a selected group. Nonetheless, patients with COPD were matched to disabled controls by
disability, and differential selection for day-hospital attendance may itself reflect failure to identify disability. However, we advocate caution in interpreting our data and recommend further studies of this subject.

This was a point-prevalence study and we cannot claim that greater service provision would improve the quality of life of patients with COPD. However, the Iqualit program [7] did reduce hospitalization, improve quality of life and increase self-esteem and social interaction. Similar outcomes have been found in most North American interventional studies [8-10].

By itself, disability level is a poor predictor of the need for community service support: living alone, for instance, being a more important variable [17]. Although we have allowed for this particular variable in our analysis, there is clearly a need to examine the specific difficulties encountered by disabled patients with COPD at home.

Key points
- Elderly patients with chronic obstructive pulmonary disease receive less statutory service support than those equally disabled by other conditions, and this is not mitigated by extra family support.
- The reasons for this lower level of support are unclear but may relate to absence of a 'badge of disability' in chronic obstructive pulmonary disease.

References