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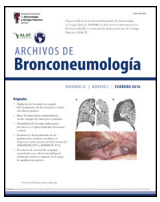

Original Article

Cost Effectiveness of Outpatient Asthma Clinics☆

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ABSTRACT

Introduction: Asthma clinics (AC) are hospital outpatient services specializing in the management of asthma. In this study, we analyzed the impact of these clinics on asthma management and their cost effectiveness in comparison with standard outpatient services.
Methods: A case–crossover study in which all new patients seen in the AC of Lugo in 2012 were included. The case period was defined as one year following the first visit to the AC; the control period was defined as the preceding year. We calculated changes in clinical quality indicators for asthma management, and estimated the incremental cost-effectiveness ratio (ICER) for each additional patient treated and for each quality-adjusted life year (QALY).
Results: The number of patients (n=83, mean age 49±15.2 years; 60.2% women) managed in the AC increased from 41% to 86%. The asthma control test score increased from 18.7±4.6 to 22.6±2.3 (P<.05) and FEV_1 increased from 81.4±17.5% to 84.4±16.6% (P<.05). The number of exacerbations, hospitalizations and visits for accident and emergency fell by 75%. The number of patients given combination LABA+ICS therapy fell from 79.5% to 41%. The use of other drug therapies increased as the following: anticholinergics, from 3.6% to 16.9%; ICS in monotherapy, from 3.6% to 45.8%; and omalizumab, from 0% to 6%. ICERs per patient managed and per QALY gained were €1399 and €6876, respectively (social perspective).
Conclusions: Treatment in ACs is cost effective and beneficial in asthma management.

Coste-efectividad de una unidad monográfica de asma

Palabras clave:
Asma
Coste-efectividad
Control
Unidad monográfica
Calidad de vida

RESUMEN

Introducción: Las unidades monográficas de asma (UMA) son consultas hospitalarias implementadas para lograr una mejoría clínica de los pacientes. Este estudio analiza su impacto sobre el control del asma y su coste-efectividad en comparación con las consultas ordinarias.
Métodos: Estudio de casos cruzados que incluyó a todos los pacientes que fueron atendidos por primera vez en la UMA de Lugo durante 2012. Se definió el «periodo-caso» como los 365 días que siguieron a la primera visita en la UMA, y el «periodo-control» como los 365 días que la antecedieron. Se calcularon los cambios en indicadores clínicos relevantes para el control del asma y se estimó la relación de coste-efectividad incremental (RCEI) por cada paciente adicional que fue controlado y por cada año de vida ajustado por calidad (AVAC).
Resultados: El porcentaje de pacientes (n = 83, edad media 49 ± 15,2 años; 60,2% mujeres) controlados aumentó del 41 al 86%. El resultado del test de control del asma mejoró desde 18,7 ± 4,6 hasta 22,6 ± 2,3 (p < 0,05) y el FEV_1 se elevó desde 81,4% ± 17,5 hasta 84,4% ± 16,6 (p < 0,05). Las exacerbaciones, hospitalizaciones y visitas a urgencias disminuyeron un 75, un 78 y un 75%, respectivamente. La utilización

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de combinaciones CI/LABA decreció del 79,5% al 41%. El uso de otros fármacos aumentó: anticolinérgicos del 3,6 al 16,9%, CI en monoterapia del 3,6 al 45,8%, y omalizumab del 0 al 6%. Las RCEI por paciente controlado y por AVAC ganado fueron de 1.399 y 6.876 €, respectivamente (perspectiva social).
Conclusiones: La atención en una UMA es coste-efectiva y tiene un impacto beneficioso sobre el control del asma.

Introduction

According to a report published by the World Health Organization, 300 million people worldwide suffered from asthma in 2004, and its prevalence continues to rise.[1] In Spain, around 5% of the adult population are affected by the disease.[2] Despite therapeutic advances and the implementation of clinical practice guidelines,[3,4] the disease is poorly controlled in between 50% and 70% of asthma sufferers.[5,6] A recent Spanish report found that in 3.9% of asthmatics, the disease is severe and poorly controlled.[7] The AsmaCost[8] study estimated the annual cost per asthma patient at €2635, with 50% of this due to severe cases.[9] The 2004 COAX study estimated the mean cost of a moderate asthma exacerbation at €1230, and a severe exacerbation at €3543.[10]

These figures show the need for strategies aimed at improving follow-up of asthma patients and their interaction with specialist physicians, coupled with a more personalized approach in which individual patient needs are recognized and pharmacological or behavioral (education and follow-up of therapeutic compliance) interventions undertaken.[11] All these strategies should be spearheaded by asthma clinics (AC). These outpatient services, staffed by multidisciplinary teams and headed by an expert in the disease would not only provide a comprehensive service, but also play a major role in optimizing economic resources. Nevertheless, previous studies have failed to assess the cost effectiveness of a specialized asthma clinic for both patients and the health service.

Materials and Methods

Design

Retrospective, observational, crossover study with the primary objective of evaluating the cost effectiveness of managing individuals diagnosed with asthma seen for the first time in 2012 in the Hospital Universitario Lucus Augusti (HULA) AC in Lugo, Spain.

The HULA AC (which was opened in 2010) comprises 2 consulting areas (medical and nursing) staffed by asthma specialists. The multidisciplinary team also includes staff from the allergy and immunology clinic. The AC performs all the tests and studies required for the diagnosis and follow-up of asthma patients (spirometry, plethysmography, oscillometry, fractional exhaled nitric oxide, methacholine and mannitol challenge, sputum cell count, etc.) Patients with exacerbations are treated during normal working hours in the pulmonology day clinic, where biological therapies are administered. All patients are taught how to manage their disease and their therapy, and are given a written treatment schedule. The AC is also involved in clinical research and helps train residents and pulmonologists from all over Spain. Asthmatics are referred to the AC from primary care or other specialist centers at the discretion of their attending physician, and not exclusively due to poor disease control. According to the head of the AC, it is equally important to care for patients with well-controlled asthma (workload permitting) for 2 main reasons: to ensure correct diagnosis and to taper treatment once the disease is under control. Due to either lack of training or poor diagnostic methods, diagnosis and treatment follow-up are rarely guaranteed outside the setting of an AC.

For the purpose of the study, data were sourced from IANUS, the Galician Health Service electronic medical record database, which includes details such as date of medical consultation, tests performed, and changes in therapy. "Case-period" was defined as the 365 days following the first consultation at the AC, and "control-period" was defined as the preceding 365 days. The clinical status and cost of care for each patient during the year preceding and following the first evaluation in the AC were compared.

The study was approved by the Clinical Research Ethics Committee (CREC) of Galicia (code 2014/180).

Patients

The clinical records of all patients (mostly poorly controlled) aged≥18 years, previously diagnosed with asthma, and seen in the AC from 1 January 2012 to 1 January 2013, were included in the study. In some patients referred to the AC with a diagnosis of asthma, the disease was later ruled out. These patients were not followed up.

Study Protocol

Details of the clinical and functional status and analytical tests performed on all study patients were extracted from IANUS, together with their use of healthcare resources (visits to primary care physicians and specialists due to exacerbations, days of hospital stay, emergency care, asthma medication and diagnostic tests performed). Other data included loss of labor productivity days due to visits to the doctor, the emergency room, and hospitalization, and the cost of traveling to the AC. All study data were uploaded to an electronic case report form (CRF) for subsequent statistical analysis.

Variables

Study variables and their definitions [diagnosis of asthma, definition of control, exacerbation, cost, and quality-adjusted life year (QALY)] are summarized in Table 1. Cost variables included direct medical costs met by the Galician regional health service (SERGAS) relating to use of resources (asthma medication, visits to the doctor, diagnostic tests and hospitalization), the cost to the patient of traveling to the AC (direct non-medical cost), and the cost to society in terms of loss of labor productivity (indirect cost) for both the year preceding and following referral to the AC. The reference year for costs was 2012. Being a 1-year follow-up study, no discount rate was applied. Table 2 shows the itemized cost of resources and the data source.

Effectiveness was measured in terms of both number of patients successfully controlled and QALYs gained 1 year after treatment in the AC. Disease control was defined as a minimally symptomatic or asymptomatic (asthma control test [ACT]≥20) patient with normal or near-normal lung function (FEV_1>70% of predicted) and no exacerbations. None of the patients included in the study had completed quality of life questionnaires that would have allowed us to directly measure QALY. In order to estimate overall pre- and post-AC QALY for the series as a whole, we extrapolated QALY estimates