



Original Article

Care Results in a Specialist Stop-Smoking Unit

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ABSTRACT

Background and objective: To present the short, medium and long-term results of a stop-smoking clinic after 5 years of experience. The clinic was designed following the SEPAR Recommendations.

Patients and methods: Two types of clinic protocols have been applied: individual and group. Both offered of a combination of psychological intervention and pharmacological treatment. The programme included 10 visits over 12 months. The pharmacological treatment consisted of: nicotine replacement therapy (NRT) or bupropion or varenicline or a combination. The psychological intervention consisted of: self-monitoring, coping skills, cognitive-behavioural therapy and social intra-treatment support. The treatment was always offered for free.

Results: A total of 3920 patients were seen in the clinic. These patients made 21,418 clinic visits. 1850 smokers who attended the clinic consecutively between January 2004 and March 2007 were monitored. Their mean age was 47.83 (± 11.03) and the mean Fagerström Test for Nicotine Dependence (FTND)-score was 6.56 (± 2.41). 55.9% patients received NRT, 22.8% bupropion, 18.9% varenicline and 2.4% did not receive any pharmacological treatment. Continuous abstinence rates at 6 and 12 months follow up were 58.5% and 54.9%, respectively. These abstinence rates at 36 and 57 months follow ups were 42% and 35%, respectively. The cost in medication for each patient was 118 euros and the cost in medication for a successful abstainer at 6, 12, 36, and 57 months of follow up were 202, 215, 281 and 338 euros, respectively.

Conclusions: A stop-smoking clinic that is designed according to SEPAR. Good, cost-effective results in the short, medium and long-term.

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Resultados asistenciales de una unidad especializada en tabaquismo

RESUMEN

Introducción: El objetivo del presente artículo es presentar los resultados asistenciales y de gasto farmacéutico de una unidad especializada en tabaquismo (UET).

Pacientes y métodos: Se aplicaron 2 protocolos asistenciales: individual y grupal. En ambos casos se oferta una combinación de tratamiento farmacológico y psicológico en 10 consultas, a lo largo de 12 meses de seguimiento. Como tratamiento farmacológico se emplea: tratamiento sustitutivo con nicotina, bupropión o vareniclina, o una combinación de ellos. El tratamiento psicológico contempla: realización de autorregistros, identificación de situaciones de alto riesgo, técnicas de afrontamiento, técnicas cognitivo-conductuales y apoyo intratratamiento. En todos los casos el tratamiento fue gratuito.

Resultados: Se han realizado 21.418 consultas sanitarias a un total de 3.920 fumadores (un 49% varones). Se analiza una muestra constituida por 1.850 fumadores que acudieron consecutivamente a la UET entre enero de 2004 y marzo de 2007. Su edad media (\pm desviación estándar) era de 47,83 \pm 11,03 años, y la puntuación media del test de Fagerström, 6,56 \pm 2,41. El 55,9% recibió tratamiento sustitutivo con nicotina, el 22,8% bupropión, el 18,9% vareniclina y un 2,4% no recibió tratamiento farmacológico. La abstinencia continua a los 6 y 12 meses de seguimiento fue del 58,5 y el 54,9%, respectivamente. Estas cifras fueron del 42 y el 35% a los 36 y 57 meses de seguimiento. El coste en fármacos por paciente atendido fue de 118 €, y el coste por fumador atendido que consiguió mantenerse abstinentes a los 6; 12; 36, y 57 meses fue de 202; 215; 281, y 338 €, respectivamente.

Conclusiones: Una UET obtiene buenos resultados asistenciales y económicos a corto, medio y largo plazo.

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Palabras clave:

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Introduction

Some years ago, the Spanish Society of Pneumology and Thoracic Surgery (SEPAR) drew up recommendations for the organisation and operation of units specialising in stopping smoking (from the Spanish, UET).¹ These guidelines specified the required material and human resources, as well as setting out the functions to be met and the population to target. Since then, different autonomous communities in Spain have developed various plans for comprehensive prevention and control of smoking. A good number of them have involved the establishment of such units in different public health centres.²⁻⁵ In many cases, the criteria followed for establishing such UETs were taken from those stated in the SEPAR guidelines.⁵

More recently, the update of the US clinical practice guideline for "Treating tobacco use and dependence" in the US Department of Health and Human Services has defined the characteristics for an intensive stop smoking schedule.⁶ In these cases, interventions should be numerous (4 or more sessions over a year of monitoring) and long-lasting (each session should be more than 10 min). They must be offered by a multidisciplinary team (medical graduates, smoking specialists, experts in various medical specialties, nursing graduates, psychology graduates, etc.) which prescribes both drug therapy (e.g. nicotine replacement therapy - NRT, bupropion or varenicline) and psychotherapy treatment (e.g. cognitive behavioural techniques, social support intra-treatment). Such interventions can come in different formats: by phone, individually and in groups.⁶ Given these characteristics, it appears that the UET, as defined in the SEPAR recommendations, is the ideal location to conduct an intensive stop smoking programme.

The aim of this article is to present the care results in the short, medium and long term that the Community of Madrid's UET had over a 5-year period (October 2003 - October 2008). The unit was organised and operated under the SEPAR recommendations. Data on drug costs in the UET will also be given. To our knowledge, this is the first Spanish study analysing the care results and pharmaceutical spending in an UET organised and operated under the general requirements of the SEPAR recommendations.

Patients and Methods

Resources and Systematic Care

The Community of Madrid's UET began operating in October 2003. It currently has 3 pneumologists, 2 nurses, a psychologist and a secretary, while all health workers are smoking specialists or experts. The centre has all the clinical material and office equipment required to perform care, teaching and research work which is all its own.

Two care protocols are provided: individual and group.

The individual care protocol consists of 10 consultations; the first is the baseline and the remaining 9 are the follow-up. The baseline consultation lasts between 30 and 40 min, and at the end the patient chooses the day to stop smoking (D-day). During this visit, which is always given by a respiratory specialist, the clinical and smoking history is taken, and various tests are performed: co-oximetry, spirometry and cotinine determination in body fluids. The follow-up visits are held at 1, 2, 4, 8, 10 and 12 weeks, then 4, 6 and 12 months after D-Day, and are all independently conducted by UET health personnel. These consultations are to control withdrawal symptoms and provide drug therapy, with individualised psychotherapy. Different tests are also performed, e.g. co-oximetry and cotinine determination in body fluids. Three times a week, the patients' situation is considered in a clinical session held by all unit health staff, where each case is discussed and appropriate decisions taken.

The group protocol consists of 9 sessions. The first takes place a few days before D-Day and lasts approximately 80-90 min. During this session, the patients choose their D-day and receive advice in preparing for it. They are then informed about the basics of withdrawal. In addition, various tests are performed: co-oximetry, spirometry and cotinine determination in body fluids. The remaining sessions are held 1, 2, 4, 8, 10, and 12 weeks, then at 4 and 5 months after D-Day. These sessions help to control withdrawal and provide drug therapy, as well as explain the different cognitive behavioural techniques to patients. Various tests are also performed: co-oximetry and cotinine concentrations in body fluids.

The prescribed treatment is a combination of pharmacological and psychological treatment. The drug therapy consists of the different types of NRT used in Spain, bupropion or varenicline, or a combination of both. The psychotherapy consists of the following activities: self-monitoring, identifying high-risk situations, coping strategies, cognitive behavioural therapy and intra-treatment support.

All patients attending the UET are referred by a doctor. Individual or group therapy is decided in the unit by health personnel or by patient preference. It is worth noting that this health centre treatment functions within the Spanish National Health Service, and is therefore entirely free for the patient.⁷

Assessment of Care Results

To evaluate care results, the following parameters were used. The primary efficacy parameter after one year was the continued abstinence rate. This is defined as the number of patients attending the UET, with the intention of receiving treatment, who smoked absolutely nothing from at least 15 days after D-day to the 6 or 12 month follow-up point. This statement was checked in all cases by measuring the carbon monoxide concentration in exhaled air. A value below 10ppm was considered as confirmation. These determinations were performed with a Micro Smokerlyzer co-oximeter (Bedfont Scientific, Rochester, UK).

The main efficacy parameter used at 36 and 57 months was the single point abstinence rate. This was defined as the number of patients attending the UET, with the intention of receiving treatment, who after being contacted alleged to have smoked absolutely nothing the previous week. These cases were conducted by telephone so the response was not confirmed by co-oximetry.

Statistical Analysis

To assess the data, a SPSS database (version 13.0) was configured within a Windows environment (SPSS Inc., Chicago, Illinois, USA). A descriptive study of the variables was analysed by expressing the quantitative values as an average (with standard deviation), and the qualitative values as proportions with their absolute frequencies.

Results

Characteristics of Patients

Table 1 shows the care activity performed in the UET over the years. 21,418 medical consultations to help 3,920 smokers to stop smoking were provided. Analysis of the care results was done on a sample of 1,850 smokers who attended the UET consecutively between January 2004 and March 2007. Table 2 shows the sociodemographic, clinical and smoking characteristics of this sample. The group consists of equal numbers of men and women, many of them had comorbidities and smoked a high number of cigarettes a day (over 77% smoked their first cigarette within 30 min of getting up).

Treatment Used

The vast majority of patients seen (97.6%) received both pharmacological treatment and psychotherapy, either individually or in groups. Only 42 (2.4%) received just psychological treatment: 14 had contra-indications for the use of any drug treatment, and the rest refused it. Treatment was individual for 87% of the patients and by group for the rest. Table 3 shows the number and percentage of patients who had different types of treatment.

Efficacy

Efficacy data at 6, 12, 36, and 57 months follow-up are shown. Table 4 shows the continued abstinence rates at 6 and 12 months after follow-up in the study sample.

From October 2005 to October 2008, a total of 360 smokers had completed 36 months of follow-up. Of these, telephone contact was established with 324, of whom 151 (42% of the total) professed single-point abstinence. Between October 2003 and October 2008, 47 smokers had completed 57 months of follow-up. Only 30 of the 47 could be contacted, of whom 16 (35% of the total) met the criteria for single-point abstinence.

Reasons for Treatment Failure

Smokers who failed to remain abstinent after a year of monitoring were assessed. Of the 1,850 smokers treated, 835 failed for the following reasons: 351 (42%) failed to follow up; 209 (25%) did not want to continue the programme; 108 (13%) felt the treatment was not helping them; and 167 (20%) gave other reasons.

Spending on Drugs

To analyse the drug costs, the UET spending on pharmacological treatments was studied over a period of 18 months (between January 2007 and June 2008). The spending on drugs during that period amounted to ?215,612. Different types of NRT accounted for 38% (€81,664), 14% (€30,406) was spent on bupropion and 48% (€103,542) on varenicline.

During this period, the UET treated a total of 1,824 patients. Of these, 894 (49%) received NRT, 237 (13%) received bupropion and 647 (35.5%) had varenicline; while 46 (2.5%) were not prescribed any medication. From these figures, the drug costs per smoker treated during a period of 18 months were €118.

If the short, medium and long term abstinence rates the UET had during this time are extrapolated, then applied to the drug spending figures obtained in this study, an estimated cost per treated smoker who successfully quit after 6, 12, 36 and 57 months was €202, €215, €281 and €338, respectively.

Discussion

This is the first study in Spain analysing the care and drug cost in a publicly available UET, which is organised and operated according to the SEPAR recommendations.¹

Table 1
Care activity in the Specialist Stop Smoking Unit (UET)

Year	Baseline consultations	Follow-ups	Total consultations
2003, since October	47	190	237
2004	327	1,793	2,120
2005	454	2,160	2,614
2006	760	3,390	4,150
2007	1,042	4,629	5,671
2008, until October	1,290	5,336	6,626
Total	3,920	17,498	21,418

Table 2
Sociodemographic, clinical and smoking characteristics of patients

No. of patients	1,850
Sex	
Men	925 (50%)
Women	925 (50%)
Average age (years)	47.83 ± 11.03
Socioeconomic level	
Low	388 (21%)
Medium	1,165 (63%)
High	297 (16%)
Marital status	
Single	352 (19%)
Married	722 (39%)
Divorced	499 (27%)
Widowed	277 (15%)
Patients with smoking-related diseases	1,239 (67%)
Cardiovascular diseases	261 (21%)
Chronic obstructive pulmonary disease	397 (32%)
Other chronic respiratory diseases	198 (16%)
Tumour diseases	236 (19%)
Various comorbidities	147 (12%)
Patients with psychiatric comorbidity	795 (43%)
Anxiety-depression syndrome	278 (35%)
Major depression	207 (26%)
Schizophrenia	143 (18%)
Bipolar disorder	167 (21%)
Patients with other drug addictions	388 (21%)
Heroin	51 (13%)
Cocaine	110 (28%)
Marijuana	120 (31%)
Various drugs	97 (25%)
Designer drugs	10 (3%)
Average number of cigarettes smoked daily	28.3 ± 10.4
Carbon monoxide concentration in expired air (ppm)	27.7 ± 9.4
Fagerström score	6.56 ± 2.41
Time until the first cigarette of the day	
Less than 5 min	561 (30.3%)
Between 5 and 30 min	869 (47%)
Greater than 30 min	420 (22.7%)

Values expressed as mean ± standard deviation or number of patients (percentage).

Table 3
Treatment given in the Specialist Stop Smoking Unit

Nicotine replacement therapy	1,034 (55.9%)
Nicotine patches	554 (30%)
Nicotine gum	67 (3.6%)
Nicotine gum + patches	413 (22.3%)
Bupropion	424 (22.8%)
Bupropion only	308 (16.6%)
Bupropion + nicotine gum	104 (5.6%)
Bupropion + nicotine patches	12 (0.6%)
Varenicline	350 (18.9%)
Varenicline only	324 (17.5%)
Varenicline + nicotine gum	26 (1.4%)
No pharmacological treatment	42 (2.4%)
Group format	240 (13%)
Individual format	1,610 (87%)

Over 5 years, using a variety of human and material resources, a total of 21,418 medical consultations were given to help 3,920 smokers quit the habit. Some notable features of the smokers attending the UET were: (a) the majority had some type of comorbidity and more than 20% were afflicted with other drug addictions, and (b) the high degree of physical dependence on nicotine. Comorbidity, both psychological as well as due to other diseases associated with smoking, is a common feature among groups of smokers attending specialist centres. A recent study found that more than 20% of patients who attended the Mayo Clinic Nicotine Dependence Centre over a period of 20 years had depression.⁸ Similarly, the high degree of physical nicotine

Table 4
Continued abstinence rates

Treatment	Continued abstinence	
	6 months (%)	12 months (%)
Nicotine replacement	54.1	49.6
Bupropion	60.3	57.6
Varenicline	61.8	58.5
Only psychiatric	53.2	50
Total group	58.5	54.9

dependence among those who attend such centres is very common. Nerin et al⁹ found that 76.3% of patients consumed their first cigarette within 30 min after getting up. This figure is similar to that found by us (77.3%).

This type of UET care in the Community of Madrid has increased exponentially over the last few years (Table 4). According to data from the study by Croghan et al,⁸ health care activity in the Nicotine Dependence Centre has also increased steadily since its inception in 1988.⁸ In fact, the number of patients seen in the UET over the past 2 and a half years is almost four times that seen in its first 2 years.

Regarding the treatment prescribed, it should be noted that 97% of patients received combination therapy. Only in 42 cases was it not possible to use pharmacological treatment. Nowadays, it has been clearly shown that stopping smoking requires a combination of drug therapy, to alleviate the physical dependence on nicotine, and psychotherapy, to combat the psychological dependence on tobacco consumption.^{6,10} Only on rare occasions is the use of drugs not necessary. Of the 42 patients who received no drug treatment, 14 had medical contraindications for the use of such drugs and the rest refused to take them.

The prescription of one or other drug treatment was based on clinical factors, the smoking habit and smoker personal preferences.^{6,10} The SEPAR guidelines regarding prescribed drug treatment times and dosage were followed at all times.^{10,11} NRT was the preferred treatment, it being prescribed to nearly 56% of patients attending the UET. The rest were divided between bupropion and varenicline. However, varenicline only appeared on the Spanish market in 2006, and this may at least partially explain these figures. In analysing pharmaceutical expenditure from January 2007 to June 2008, during which time all treatments were available in Spain, the use of varenicline increased to 35.5%, bupropion reduced to 13% and NRT stabilised around 50%.

87% of patients received individual treatment, although all meta-analyses performed agree that the efficacy of stop smoking treatment is independent of the format offered.^{6,11,12} Using one format or another depends on the characteristics of the patients attending and the working methodology of the treatment team. Our group used the individual or telephone format more often than the group one, and had similar results with both.¹³⁻¹⁵

Our treatment programme, which brought together all intensive programme features, obtained a continued abstinence rate after the one year follow-up of almost 55%. This is a significant figure, given the very strict abstinence parameters used.¹⁶ Figures obtained by less intensive treatment programmes have a success rate of only 31% after a year.^{14,17} A recent study examined the effectiveness of a treatment programme similar to ours and found figures of about 62% successfully stopping smoking after 6 months.⁹ Our programme achieved 58.5% success after that time, however, our abstinence criteria are stricter than that used in the other study.

Varenicline was the most successful of the drug treatments used. However, our study design did not allow for valid comparison to be made on the efficacy of different treatments used.

Other notable data are single-point abstinence figures at the 36 and 57 month follow-up periods. Patients successfully completing the 36 and 57 month follow-up period were 42% and 35%, respectively.

The abstinence criterion used here is less strict than that required at 6 and 12 months, however, although the results are still significant. The absence of confirmation of abstinence at 36 and 57 months using co-oximetry is, however, probably one of the limitations of our study. Nevertheless, some authors point out that smokers included in a treatment programme prefer to leave it altogether rather than lie about their smoking.¹⁸ Moreover, in another study of 904 smokers in our group who received stop smoking treatment, we analysed the reliability of answers given by patients about their smoking. It was found that the reliability of answers from those who remain in the programme is high, and that the practice of co-oximetry is absolutely unnecessary.¹⁹

In our study, we estimated that the cost of drugs per patient was ?118, and that the cost per patient who had successfully stopped smoking after a year was ?215. In a study of 412 patients attending a British stop smoking unit, Stapleton et al²⁰ estimated that the cost per treated smoker was approximately £133.3, and that the cost per patient who had stopped smoking after 12 weeks was £206.4. The expenditure figures we estimate for successful non-smoking at the 36 and 57 month follow-up periods are striking. While it is true that they should be taken with caution because they are only estimates, it is also true that they are supported by estimates by Stapleton et al²⁰ in their study. In addition, the excellent cost-benefit ratio of stop smoking treatments is well known.^{21,22}

To summarise, we have presented the care results in the short, medium and long term for an UET designed according to the SEPAR guidelines. A total of 3,920 smokers were treated over a 5-year period. The success rate at 12 months was almost 55%, and at 57 months was 35%. All patients received free treatment. The drug cost per treated smoker was ?118, and the costs per patient successfully stopping smoking at the 12 and 57 month follow-up periods were ?215 and ?338, respectively.

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