

# RESULTS OF PHARMACOLOGICAL THERAPY WITH BUPROPION IN TABAGIC WITHDRAWAL IN THE SMOKERS FROM THE COUNTY OF VÂLCEA

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**Keywords:** bupropion, abstinence, nicotine addiction, smoking cessation, varenicline

**Abstract:** Published data supporting the efficacy of bupropion in the treatment of addiction nicotine significantly reducing symptoms of depression associated with withdrawal. The descriptive retrospective study followed the results of pharmacological therapy with bupropion compared with varenicline of 918 smokers with high addiction to nicotine, who were sent at smoking cessation office from Pneumoftisiology Hospital "Constantine Anastasatu" Mihaiești, Valcea. Outcomes: in the group studied, bupropion therapy had a success rate that is above the national success rate (45.88% vs 41,70%). There were no significant differences between the success rate of therapy with varenicline compared with bupropion (45.88 vs.. 51.3%,  $p = 0.54$ ).

**Cuvinte cheie:** bupropion, abinență, dependență nicotinică, sevraj, vareniclină

**Rezumat:** Datele publicate susțin eficacitatea bupropionului în tratamentul dependenței nicotinică reducând considerabil simptomele de depresie asociate sevrajului(1,2). În studiul retrospectiv descriptiv de față s-au urmărit rezultatele terapiei farmacologice a sevrajului tabagic cu bupropion comparativ cu vareniclina, la un număr de 918 fumătorii, cu grad înalt de dependență la nicotină, ce s-au adresat cabinetului de consiliere pentru renunțare la fumat de la Spitalul de Pneumoftiziologie, „Constantin Anastasatu”, Mihăești, județul Vâlcea. Rezultatele: în lotul studiat, terapia cu bupropion a avut o rata de succes ce se situează deasupra ratei de succes la nivel național (45,88% vs. 41.70%). Nu au existat diferențe semnificative între rata de succes a terapiei cu bupropion comparativ cu vareniclina (45,88 vs. 51,3%;  $p = 0.54$ ).

## INTRODUCTION

Bupropion is available in Romania since 2000, was used successfully on the Romanian market can and because the advantage of being the only option available of pharmacologic treatment for tabagic between withdrawal 2001-2007. Published data supporting the efficacy of bupropion in the treatment of addiction nicotine significantly reducing symptoms of depression associated with withdrawal The descriptive retrospective study followed the results of pharmacological therapy with bupropion compared with varenicline of 918 smokers with high addiction to nicotine, who were sent at smoking cessation office from Pneumoftisiology Hospital "Constantine Anastasatu" Mihaiești, Valcea(2). **Bupropion therapy** - first non-nicotinic-treatment under the national program in Vâlcea county, we considered it as important, as there was no study on the pharmacological therapy in tabagic withdrawal to smokers with high level on nicotine and any other information relating to the prevention and combating tobacco consumption in Vâlcea County.

## PURPOSE OF THE STUDY

Study of the success rate of pharmacological therapy with bupropion in tabagic withdrawal to smokers high in nicotine under the National Program and comparison with results obtained with varenicline.

## MATERIAL AND METHOD

The data in the consultations of the cabinet for smoking cessation were used from the Pneumoftisiology Hospital "Constantin Anastasatu" Mihăești, Vâlcea and the

dependency evaluation was done by the **Fagerström test**. The subjects were interviewed by making the **observation sheet of the smoker -original - and case report forms of control and observation sheet of the smoker - final evaluation**.

They studied a total of 918 smokers divided into 2 groups: one group of 752 patients in therapy with bupropion and a group of 115 patients in therapy with varenicline.

## RESULTS

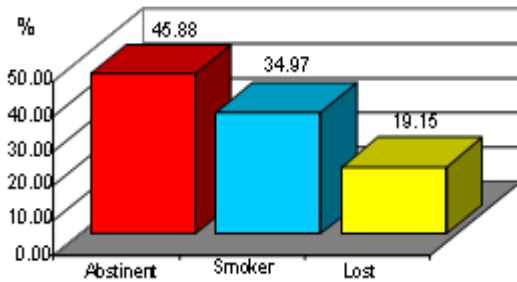
The analysis of the entire group in pharmacological therapy includes 918 subjects. Distribution **by gender** showed a total of 301 women representing a rate of 32.79% and 617 men representing a rate of 67.21%. **Sex distribution in the two batches was:** men 68.88% and women 31.12% in the group with **bupropion** (Zyban) vs. 60% male and 40% women in **group with varenicline** (Champix). The analysis of gender distribution of the batch who received treatment with bupropion meets global gender distribution and dynamics in tobacco consumption among the population of Romania, highlighting the increased prevalence of smoking among men than women in the population of our country. **Environment origin** had no significant influence on the results of tabagic withdrawal, the structure of the batches being similar, most patients (87% respectively 93%) coming from urban areas. **The analysis by age groups** shows increased prevalence in groups aged 20-29 years, 30 - 39 years and 40-49 years for both groups. Distribution analysis of the entire group according to the Fagerström test result indicates a high **dependence** to 816 smokers representing 88.88% and a low dependence to 102 smokers representing 11.11%.

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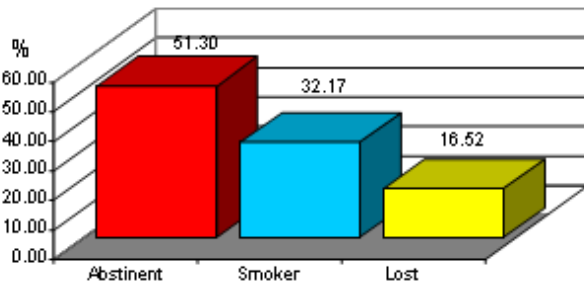
**Distribution of the batch depending on the final status:** at the end of therapy the following results were obtained: 424 *abstinent* subjects (46.1%), *smokers* 318 subjects (34.6%), *lost* 176 subjects (19.1%). In the smokers' group that followed the treatment with bupropion were recorded: 345 *abstinent* subjects (45.8%), 263 subjects *smokers* (34.9%), *lost* 144 subjects (19.1%) (Picture no. 1). There is a higher percentage of abstinent in varenicline treated group (51.30%) (Picture no. 2).

**Post-therapeutic final status of smokers**

**Picture no. 1. Results of therapy with bupropion (batch Z)**



**Picture no. 2. Results of therapy with varenicline (batch C)**



Although for the individuals studied, there is a difference of more than 5% between the effectiveness of the treatment with Champix and Zyban, this difference is not a statistically significant but may be smaller or nonexistent in reality.

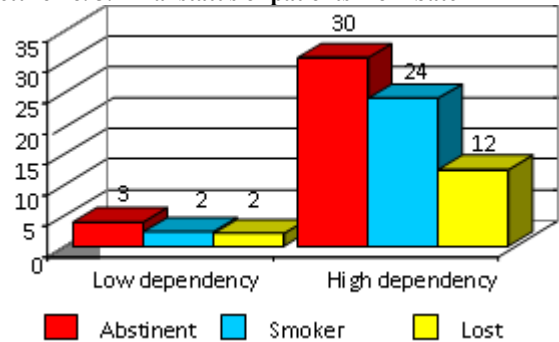
**The final status of smokers receiving treatment (total group), analyzed according to the degree of dependence occurs after Fagerström test results, was:** of the 816 highly dependent smokers, 376 have become abstinent, and 290 have remained smokers and the rest of 150 were lost. Intra-therapeutic relapses were 290, while relapse and lost subjects overcomes the sum of urge abstinent. **In the highly addictive bupropion group** the proportion of abstinent was quasi-equal with those of smoker and lost patients, a fact which we consider successful (306 of 328 vs. 39 of 43 in those with low dependency) (Pictures no. 3 and 4). **In the high dependency group treated with varenicline** the abstinent number was 52, smoking 33 and lost 14.

**The final status of patients by degree of dependence occurred after the treatment followed**

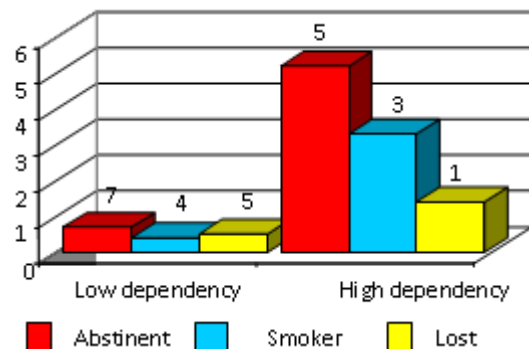
The study examined whether **the duration of treatment** influenced the outcome of therapy. Thus, the final status of abstinent patients was evaluated after the number of boxes of medication used considering that the box represents a treatment for 14 days. In the group, generally 69% of patients were treated and had a single box, and had a successful rate of 25%, 18% received 2 packs with success rate of 8% and 12% received 3 boxes with a success rate of 73%. In patients receiving bupropion, the success rate was 30% for those

receiving a box of treatment, and just over 80% in those who received 2 or 3 boxes (Picture no. 5).

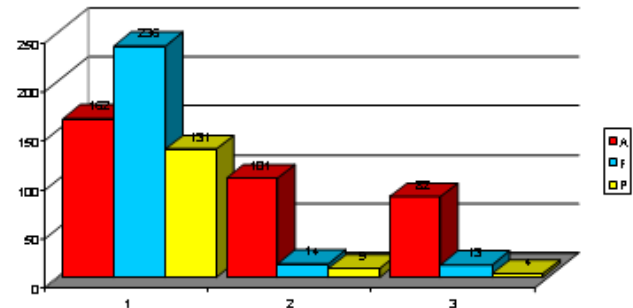
**Picture no. 3. Final status of patients from batch Z**



**Picture no. 4. Final status of patients from batch C**



**Picture no. 5. The final status of patients from batch Z depending on the duration of treatment**



In patients who received *varenicline*, the success rate was 20% for those receiving a treatment box, and just over 90% in those who received 2 or 3 boxes.

Analyzing the results it is observed increased proportion of intra-therapeutic relapses (patients who remained smokers) in batches that received only one box.

**DISCUSSIONS**

Outcomes in the group therapy with bupropion studied the success rates are above the national rate of success. The rate of subjects lost to bupropion therapy batch is the rate of subjects lost nationally in 2007 and close to the rate of subjects lost nationally in 2008 and 19.5% to 18.80% nationally.(1) Available in Romania since 2000, the drug was used successfully on the Romanian market and because the advantage of being the only option available pharmacologic treatment for tabagic withdrawal between 2001 and 2007.

The mechanism of action of bupropion SR is based on eliminating blocking dopamine and norepinephrine and *acetylcholinergic* neuronal nicotinic receptor blocking.(2) A total

of 24 randomized studies support the efficacy of bupropion in the treatment of nicotine dependence and the fact that bupropion doubles the success rate of withdrawal distance as compared to placebo in the current study.(3) Bupropion was used as an antidepressant in the United States since 1989 and its adverse-pharmacological profile is very well documented with data on product safety.(4) Like any antidepressant, the common side effects are dry mouth, insomnia and headache to be made known to potential users of the drug.(5) In our patients we had no particular adverse effects. Our study shows an increased frequency of abstinent subjects in the group with high dependence on nicotine, being able to appreciate that the dependency level does not significantly influence treatment outcome. Intra-therapeutic frequency of relapses decreases as the compliance to treatment increases. The success rate was significantly higher in patients who have undergone therapy at least a month (at least 2 boxes of treatment). The consultation of data published today by the Romanian authors showed a success rate of tabagic withdrawal with bupropion of 28%, lower than that recorded in Vâlcea.(6) Studies show a high efficiency of 36-49% after 4 weeks of treatment. Associated with TSN (preferably with a nicotine patch), bupropion may lead to a withdrawal rate of 59% at 4.7 weeks.(7) Also, long-term abstinence rates of patients treated with bupropion is doubled if added behavioral therapy compared to placebo.(8,9)

Gonzales and co-workers and Jorenby and collaborators published the first results of two randomized studies on the efficacy of varenicline vs. placebo in treating vs. bupropion SR in the treatment of nicotine dependency in July 2006. They concluded that varenicline is a safe drug, well tolerated with remarkable results in the continuous abstinence rate and long-term tabagic abstinence.(10,11) Varenicline has superior efficacy to placebo and bupropion SR in terms of smoking abstinence in weeks 9-12 (43.9% for varenicline, 17.6% for placebo and 29.8% for bupropion) and in weeks 9-24 (29.7% for varenicline, vs.13, 2% for placebo vs. 20.2% for bupropion).(12)

A team of Oxford University showed that treatment of smoking withdrawal could be adapted to individual profile. A simple DNA test (Nico test developed by g-Nostics) could say that smokers have addictive gene and would enable a greater benefit of withdrawal methods. "Addictive gene" are found in 36% of the population, having a greater chance to stop smoking using nicotine substitutes. Instead those without these genes may stop smoking when using other methods without nicotine substitutes such as bupropion or varenicline.(13)

### CONCLUSIONS

1. The study found that bupropion therapy supports its value as non-nicotinic therapy successfully used for smoking cessation.
2. From the study **of batch in therapy with bupropion** represented by 752 percent of patients achieved an abstinence rate above the abstinence rate achieved nationally, the percentage representing 45.88%.
3. For the batch of 115 patients in **therapy with varenicline** was obtained at a rate of 51.30% rate of abstinence than the national rate, with retention that the smokers' batch receiving this treatment was significantly lower.
4. The success rate depends on the duration of treatment.
5. Withdrawal percentages for smokers in Vâlcea County are close to the percentages of clinical studies.

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