Smoking Cessation Advisory Intervention in Patients with Cardiovascular Disease

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ABSTRACT

Introduction: Several studies have examined the efficacy of smoking cessation therapies in the general population. However little is known about the efficacy of these advisory methods in cardiovascular patients. **Aim:** The **aim** of the study is to determine the prevalence and the characteristics of smoking abstinence in cardiovascular patients, after a smoking intervention during hospitalization. **Methods:** The study involved 442 patients, smokers admitted for cardiovascular disease to the Department of Cardiology. During hospitalization patient's data were collected and all patients were subjected to a 30-minutes long advisory session with drug administration in selected cases (varenicycline, bupropione, nocitine replacement therapy), according to standard protocol. After the discharge patients were asked about smoking abstinence at time intervals of 24 hours, 1 month, 3, 6 and 12 months. **Results:** After hospital discharge 11 patients (2.49%) could not be contacted after several attempts and 19 patients (4.3%) were died during follow up period. A total of 412 patients (218 men and 194 women, mean age 56.49 ± 10.57 years) made up the final study population. Twenty four hours after hospital discharge 364 patients (88.35%) had quitted smoking. At 1, 3, 6 and 12 months the abstinence rates were 70.87%, 64.8%, 55.82% and 47.83% respectively. Patients with ischaemic cardiovascular diseases (angina − infarction) had a significantly higher probability of quitting smoking at 12 months (Hazard ratio: 0.64 − p=0.01). **Conclusion:** A smoking cessation program in cardiovascular patients during hospitalization was unlikely to result in success. These patients might benefit by following programs promoting smoking cessation in experienced specialized centers, involving a group of health professionals, such as psychologists and/or trained nurses.

Keywords: Smoking, Cardiovascular Disease, Ischaemic heart disease, hypertension, peripheral vascular disease.

1. INTRODUCTION

Smoking is the leading cause of death in many countries. Every year dies a great part of the population and many suffer from diseases where smoking is responsible (1). The influence of smoking on health, but also the favorable effects of the cessation, have been proven and widely known (2-4).

Smokers who were hospitalized for cardiovascular disease but they did not quit smoking seems to be more dependent on nicotine and find it hard to quit, compared with other smokers (5).

It is also known that the disease, especially associated with smoking, increases the motivation of the patient to discontinue (6). Moreover, hospitalization increases the perception of the patient about the disease and vulnerability, stimulating a sense of self-preservation. As a result the patients adopt healthy behaviors easier and tolerate the efforts of doctors and other health professionals to begin a therapy and counseling interventions (7). Beginning the effort and the smoking cessation treatment during hospitalization, the results are tactile (8). Recent data (9) suggest that only 30% of patients hospitalized are asked about smoking habits.

Programs that assist in smoking cessation include medication or behavioral therapy or both. The former contains the nicotine preparations, the varenicycline, the bupropion previously and noritryptyline. This treatment appears to increase the effectiveness 1.5-2.5 times and additional element of counseling therapy (10).

Brief counseling by physicians, perhaps supported by other health professionals, such as psychologists, may stop smoking and seems to be cost-effective (11).

Smokers, who were hospitalized for cardiovascular disease, but they did not stopped smoking, appear to be more dependent on nicotine and find it difficult to quit smoking, compared with other smokers.

Unfortunately, many smokers who are hospitalized do not receive appropriate help to quit smoking (8).

The **aim** of the study is to determine the prevalence and characteristics of smoking abstinence in patients with cardiovascular problems, after a counseling intervention for smoking cessation during hospitalization for an episode.

2. METHODS

We studied 442 patients (aged 21-79 years), smokers, who were hospitalized in the Department of Cardiology for cardiovascular disease. During hospitalization demographic data and data on smoking were collected, using specific questionnaires. The questionnaire contained information on smoking habits (number of packets, age of cigarette smoking onset, duration, previous efforts for smoking quitting, incentives to quit), the medical history (cardiovascular disease), alcohol habits, educational level. Also the height, weight and BMI were recorded.

All patients - smokers participated in a special counseling program lasting about 30 min and received written and oral instructions for smoking cessation, with medication and counseling, according to the established protocol.

The doctor was informing the patients about the dependence on nicotine, the effects of smoking on health, the social consequences, the beneficial effects of smoking cessation, how to manage the possible weight gain and how to avoid the effects of various stimuli. Also informative leaflets about smoking and the beneficial effects of the smoking discontinuation were given and information or techniques to prevent and treat symptoms of dependence (exercise, relaxation, hobbing etc.). Finally, advices on lifestyle changes were given, especially in relation to smoking cessation. The nicotine dependence was assessed by Fagestrom test and motivation test was done. When Fagestrom test was ≥ 3 medication was used, and when it was < 3 just counseling or nicotine preparations.

Data collection and intervention were made by trained staff, nurses and psychologists, of the Smoking Cessation Center.

After hospital discharge, patients were interviewed by telephone, 24 hours, after one month, three, six and twelve months, about their smoking habits. Patients who stated that they abstained from smoking after hospital discharge were considered successful. Those who said they had smoked were recorded as recurrent. The duration of abstinence was the time of discharge from the hospital until the day of relapse. The protocol was approved by the Scientific Committee of the Hospital, and all participants were informed in writing and gave their consent.

Statistical analysis Originally the normality of quantitative variables using the Kolmogorov-Smirnov test (if n >30) was estimated. The comparison of the quantitative variables was performed using analysis of variance (ANOVA) and the Student t-test for paired, if the variables followed a normal distribution and non- parametric test Kruskal-Wallis test and Mann Whitney U test whether they did not follow normal distribution. The exact significance level of each examination t was estimated by the Bonferroni method. Comparison of the qualitative variables was made using the χ^2 test of Pearson. The assessment of smoking cessation at intervals 24 hours, 1 month, 3, 6 and 12 months was done by the Kaplan-Meier curves and with log-rank test the differences between the curves were analyzed. The variables that were significantly associated with smoking cessation were introduced in a multivariable regression model (Cox regression model) to calculate the relative risk and 95% confidence interval (95% CI). Probability p < 0.05 was considered significant. The analysis was performed using the statistical package SPSS.19 (SPSS Inc., Chicago, Illinois, USA).

3. RESULTS

After hospital discharge 11 patients (2.49%) did not come into contact despite all the efforts and 19 patients (4.3%) died during the follow-up period. A total of 412 patients (218 men and 194 women, mean age 56.49 ± 10.57 years) constituted the final study population. Of these, 215 (52.18%) were suffering from ischaemic heart disease, the 128 (31.7%) from hypertension and peripheral vascular disease and 69 (16.75%) of syncope, arrhythmias and cardiac failure.

Table 1 lists detailed the demographic and epidemiological characteristics of patients. From these data it appears that patients who smoked more than 30 cigarettes a day were highly dependent, as shown by the Fager-

	Ischemic Cardiopathy n=215	Hypertension Peripheral Vascular Disease n=128	Syncope–Arrhythmias Heart Failure n=69	p
Gender (Male)	109 (50.7)	67 (52.3)	44 (65.76)	0.04
Age (Years)	56.05+9.49	58.26+10.77*	54.75+9.42	0.031
Everyday cigarettesconsumption (n)	37.54+16.33	36.04+16.8	34.1+14.7	0.37
Fagerstrome score	7.12+2.3	7.23+2.71	6.8+2.22	0.41
Night Smokers n (%)	156 (72.6)	91 (71.9)	53 (76.8)	0.7
Years of Smoking n	28.53+10.75	26.38+10.3	28.48+12.21	0.18
Motivation test	9.29+2.95	9.76+2.88	9.49+2.75	0.26

Table 1. Basic demographic and epidemiological patients characteristics. *the point where the significance exists.
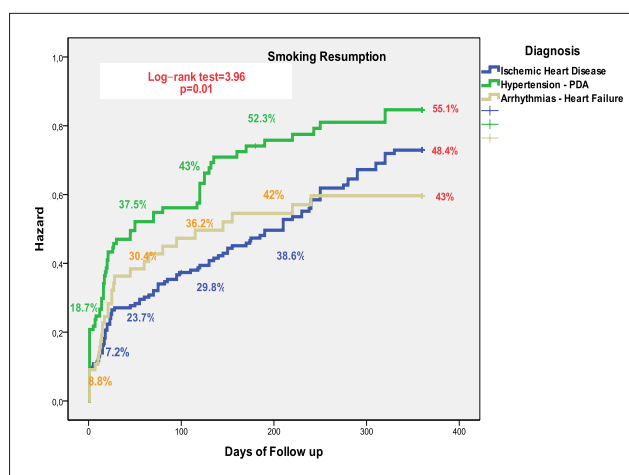
Figure 1. Rate of relapse during the follow-up time according to the diagnosis at discharge

strom test and that more than two thirds of them were waking up the night to smoke.

After discharge from the hospital, in 24 hours relapsed 48 patients (11.7%), in 1 months 120 patients (29.1%), at 3 months 144 (35%), at 6 months 179 (43.4%) and at 12 months 215 patients (52.2%). Also it was observed a difference in recurrence between patients with different diagnoses at discharge. Patients with ischaemic heart disease had the lowest relapse, which was maintained throughout the period of follow up (Figure 1).

Age, gender and diagnosis at hospital discharge were introduced in a multivariate analysis model (Cox regression analysis) to calculate the relative risk for relapse during the follow up period of 12 months. Patients with ischaemic heart disease were 1.39 times less likely to relapse, compared with other diagnoses on discharge (Hazard Ratio = 0.64, 95% CI, 0.36-0.92).

4. DISCUSSION

Smoking is an important factor for cardiovascular disease. Quitting smoking is a significant intervention in the treatment and prevention (6). It is important for doctors to convince their patients, particularly those who are hospitalized, to quit smoking.

With the present study it was examined the effect of attempting to quit smoking in patients with cardiovascular diseases, all smokers, during their hospital stay. Patients were not routinely monitored for smoking cessation after discharge.

All patients had a cardiovascular disease for which were hospitalized. Most of them, in the past, made quit attempts (1.23+0.74) but smoked long (27 years–38 cigarettes a day). They had a history of chronic smoking, which continued despite the occurrence of diseases because of smoking, but they were resistant to quit attempt.

The number of patients who continued to quit smoking after the intervention, decreased progressively during follow-up period. These findings agree with those of two studies (13, 14) that evaluated the effect of a minimum intervention in patients with cardiovascular disease during their hospitalization. The conclusion seems to be that the intervention is not enough to remain smokeless

the patient for the next 12 months after discharge from hospital.

Another analysis concluded that patients who are hospitalized for a cardiovascular disease are more receptive to cessation interventions, possibly due to the acceptance of the seriousness of their situation. Thus patients with a diagnosis of ischaemic heart disease had the highest probability not to smoke at 12 months follow-up. This diagnosis of hospitalization was the only independent factor of abstinence from smoking.

The lack of effective therapies for smoking cessation during hospitalization, has led many interventions in research and numerous studies (5, 6, 13-15) have been published about them and the factors that help in smoking cessation.

Other researchers (16) argue that only 3-5% of smokers can quit smoking and hold for 12 months after discontinuation instructions only. It is based on what patients can do to improve their health. Others argue that pharmacotherapy improves the efficiency (from 12% to 22.6%) already in the first month (17). However, these guidelines can motivate patients to quit smoking, but not to keep quitting. The drop-out rate is decreasing as time is removing from the acute episode that caused the hospitalization (18). Nevertheless there are studies (19) showing that smokers quit smoking easily when attached to a health condition (not necessarily due to smoking) and even as serious as it is the probability of quitting increases.

In other studies (20, 21) it is confirmed the favorable for the patients quit smoking after hospitalization and after counseling, either interpersonally, or by telephone.

In multivariate analysis the diagnosis was the only independent factor of smoking cessation in the follow up period for one year and even those suffering from ischaemic heart disease were more likely to quit smoking and not relapse during this period. Certainly patients were nicotine dependent strongly enough and the nature of the condition was such, forcing the patient to realize the need to quit smoking, that was one of the causative agents of the disease. Although these patients have a greater and more urgent need to quit, compared with the average smoker, many find difficult to do so. The majority fails gradually, few patient succeed (22).

Also many smokers preferred to reduce smoking than to quit. In many studies (23), the reduction in smoking by 50% after 3-4 months had a strong predictive value for quitting at 1 year. This solution must be proposed to patients strongly dependent and with cardiovascular problems.

The findings of the study suggest that an attempt to smoking cessation in clinical practice rather than in special centers is not completely successful or it has little chance of success (24). Yet doctors can help quit or reduce smoking. Unfortunately many doctors mention an inadequate training in smoking cessation and so many smokers do not receive the help they should and they need it (20).

The experience of our own center says that in patients with cardiovascular disease a short intervention during

hospitalization, as persistent as it is, is not enough for the patient to quit smoking. Based on our earlier study (24) the results are better if the patients are referred to the Smoking Cessation Clinic after discharge.

Limitations of the study. The most important is the source of information that was the patients themselves, with the risk of some data to be false. Another is the loss of participants from follow up.

5. CONCLUSION

A smoking cessation program in cardiovascular patients during hospitalization was unlikely to result in success. These patients might benefit by following programs promoting smoking cessation in experienced specialized centers, involving a group of health professionals, such as psychologists or/and trained nurses.

- The authors report that there is no Conflict of interest.

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