A new nicotine dependence score and a new scale assessing patient comfort during smoking cessation treatment*

Um novo escore para dependência a nicotina e uma nova escala de conforto do paciente durante o tratamento do tabagismo

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Abstract

Smoking is considered the leading preventable cause of morbidity and mortality. The pharmacological management of nicotine withdrawal syndrome enables better cessation rates. In our smoking cessation program, we have developed a data collection system, which includes two new instruments: a score that assesses nicotine dependence in smokers of ≤ 10 cigarettes/day; and a patient comfort scale to be used during smoking cessation treatment. Here, we describe the two instruments, both of which are still undergoing validation.

Keywords: Smoking cessation; Nicotine; Treatment outcome; Substance withdrawal syndrome; Tobacco use disorder.

Resumo

O tabagismo é considerado a maior causa evitável de morbidade e mortalidade. O manuseio farmacológico da síndrome de abstinência de nicotina possibilita melhores taxas de cessação. Desenvolvemos um sistema de coleta de dados em nosso programa de assistência ao fumante, que inclui dois instrumentos novos: um escore para dependência de nicotina em fumantes de ≤ 10 cigarros/dia e uma escala de conforto do paciente durante o tratamento do tabagismo. Descrevemos aqui os dois instrumentos, que estão em processo de validação.

Descritores: Abandono do hábito de fumar; Nicotina; Resultado de tratamento; Síndrome de abstinência a substâncias; Transtorno por uso de tabaco.

The Smoking Cessation Treatment Outpatient Clinic of the Department of Prevention and Rehabilitation, Heart Institute, University of São Paulo School of Medicine *Hospital das Clínicas*, located in the city of São Paulo, Brazil, started its health care activities in November of 1996. Since the creation of the Smoking Cessation Treatment Outpatient Clinic, the proposed treatment has been based on the doctor-patient relationship and on the prescription of drugs to treat nicotine withdrawal symptoms. Initially, the therapeutic armamentarium was limited to nicotine replacement therapy with transdermal patches. In 2001, we initiated the use of bupropion and noticed that it contributed to therapeutic success. At that time, there was no instrument (scale or questionnaire) to assess patient comfort during smoking cessation treatment, as all existing scales focused exclusively on withdrawal symptoms. Therefore, we created a questionnaire to assess patient comfort during treatment. In 2007, we developed our own smoking cessation program, the Program to Aid Smokers (PAS), which was registered with the Brazilian National Institute for Industrial Property in 2008 and updated to an online version in 2011. By 2007, over 3,000 smokers had been treated under our program.

The PAS is a consolidated system to collect medical information on smoking cessation treatment and make the information available in a systematic and organized manner. The PAS system has questionnaires for brief assessment of clinical history; current and previous psychiatric disorders; medications being used and their total quantities; demographic variables, such as age, gender, level of education, socioeconomic status,

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race, sexual orientation, number of diagnoses, smoking history, number of previous attempts to quit smoking, and previous experience with smoking cessation medications; and other data, such as weight, HR, blood pressure, and exhaled carbon monoxide levels. All of this information can be made available through database-generated reports, patient anonymity being guaranteed. During the medical visit, patients are asked whether data regarding their smoking cessation treatment can be made available for research purposes, and only the information on those who give consent is made available for the reports.

Nicotine dependence is assessed with the Fagerström test.[1] However, the PAS has an additional assessment score to be used in smokers of ≤ 10 cigarettes/day, a score known as the Issa Situational Smoking Score (Table 1). The development of this instrument was necessary because current guidelines on smoking cessation treatment[2] recommend the use of smoking cessation medications only for smokers of > 10 cigarettes/day. However, the behavior of smokers has changed because of the measures to prevent passive smoking, i.e., measures that restrict smoking in social settings. Therefore, it has become increasingly common to find smokers who smoke < 10 cigarettes/day.[3] However, this does not necessarily indicate low nicotine dependence. The existence of an instrument that can identify smokers with low consumption but possibly with a moderate or high degree of nicotine dependence allows us to consider prescribing smoking cessation drugs to facilitate the smoking cessation process in this subgroup of patients.

The Issa Situational Smoking Score (named after its author) comprises four questions, and the score ranges from 0 to 4 (Table 1). The questions were developed based on the description of the mechanism of action of nicotine on the central nervous system, a mechanism that involves effects on neurotransmitter receptors related to cognition, attention, concentration, mood, well-being, and pleasure. The neurotransmitters known to act on these receptors are acetylcholine, dopamine, noradrenaline, and serotonin.[4] As a consequence of the psychoactive effects of nicotine, smokers develop behaviors that can indicate the level of dependence as the urge to smoke is triggered by situations related to improved performance, discomfort relief, or increased feelings of pleasure. We consider that a higher perception of the urge to smoke in these situations translates to a higher dependence, and we deem it appropriate to use smoking cessation medications when the score is ≥ 2. This approach is limited to the population treated at our facility. After nicotine dependence is assessed, the physician can determine the therapeutic strategy to be used, taking into consideration other patient data. At present, the PAS methodology introduces the concept of using a scale to assess patient comfort during the proposed treatment.

There are many instruments for diagnosing nicotine withdrawal syndrome,[5,6] as well as scales that assess the presence and severity of withdrawal symptoms in patients who quit smoking.[7] However, no scale has been developed to assess the performance of smoking cessation drugs during the treatment of nicotine withdrawal syndrome. In this context, the PAS Comfort Scale was designed to assess patient comfort during treatment on the basis of the answers to 10 items, with scores ranging from 0 (greatest discomfort) to 38 (greatest comfort; Table 2). The rationale for using the PAS Comfort Scale is that the use of smoking cessation medications can relieve and change the severity of nicotine withdrawal symptoms and produce adverse effects that can have a direct influence on the smoking cessation treatment. None of the currently available scales assess the effect of smoking cessation drugs on nicotine withdrawal symptoms. The PAS scale, which is used during treatment, compares patient status before and after quitting smoking, allowing continuous assessment of the level of adaptation to abstinence and of the impact of the approaches

Table 1 - The Issa Situational Smoking Score to assess nicotine dependence in smokers of ≤ 10 cigarettes/day.

1. Do you need to smoke to improve your attention, concentration, and production?	Yes	No
2. Do you need to smoke when you are anxious, tense, or worried?	Yes	No
3. Do you need to smoke when you are sad or upset?	Yes	No
4. Do you need to smoke while drinking alcoholic beverages, after a meal, or on festive occasions?	Yes	No

One point is assigned for each affirmative response: ≤ 1 point, low dependence; 2-3 points, moderate dependence; and 4 points, high dependence.

Table 2 - The Program to Aid Smokers Comfort Scale.

1. How often do you have cravings?	Score
Never	3
Not every day	2
A few times a day	1
Many times a day	0
2. In comparison with your levels of anger and irritability as a smoker, your current levels are	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0
3. In comparison with your levels of anxiety and tension as a smoker, your current levels are	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0
4. In comparison with your levels of impatience and restlessness as a smoker, your current levels are	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0
5. In comparison with the frequency of depressive mood as a smoker, the current frequency is	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0
6. In comparison with your level of difficulty concentrating as a smoker, your current level of difficulty is	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0
7. In comparison with your appetite as a smoker, your appetite is currently as follows:	Score
The same	3
Slightly increased	2
Moderately increased	1
Strongly increased	0
I have no appetite	0
8. In comparison with your level of insomnia as a smoker, your current level of insomnia is	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0

Table 2 - Continued...

9. In comparison with your level of daytime sleepiness as a smoker, your current level of daytime sleepiness is	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0
10. In comparison with your level of headache as a smoker, your current level of headache is	Score
Lower	4
The same or I do not experience that	3
Slightly higher	2
Moderately higher	1
Much higher	0

adopted, with the purpose of increasing patient comfort during treatment. The clinical use of the PAS scale revealed the need to revise the therapeutic approach to patients with a score below 20. A PAS scale score below 20 reveals mild discomfort, i.e., discomfort that is neither limiting (moderate) nor disabling (severe). Therefore, the use of the PAS scale has allowed us to determine the level of comfort during treatment, and this can directly affect the outcomes.

The PAS system was designed on the basis of outpatient clinical experience in the treatment of smokers over a 16-year period of specialized care. Before the creation of the system, over 3,000 had been treated and approximately 18,000 medical consultations had been held. In the ambulatory care setting, the PAS system has been used as a tool in the smoking cessation treatment of more than 2,000 patients in its desktop version and in the treatment of approximately 800 patients in its online version, being also a tool for the implementation of the Framework Convention on Tobacco Control,[8] which is a global treaty on smoking control. Article 14 of that convention aims at encouraging the treatment of smokers as a strategy for achieving a rapid decrease of the consequences of this global pandemic.[9] The PAS system makes it possible to conduct objective, careful medical consultations, as well as providing systematic information that allows a rational and well-thought-out use of the therapeutic strategies available. Examples of its use in clinical practice were found by searching the PAS system database in the 2007-2009 period. In one analysis, the use of varenicline alone or in combination with other drugs was found to be effective.[10] In another analysis, the time and reason of smoking relapse were studied.[11] In addition, analysis of the PAS system database made it possible to evaluate the influence of smoking cessation drugs on blood pressure, HR, and exhaled carbon monoxide levels.[12] All of those analyses allowed a better understanding of the population treated and the therapeutic strategies adopted.

The use of the PAS methodology has allowed a better understanding of nicotine dependence and a better quality of care for patients during the smoking cessation process, as well as allowing a critical analysis of the effectiveness of the therapeutic approaches to smoking cessation, which is a dynamic process, with the use of the PAS Comfort Scale during treatment and follow-up.

The PAS system was developed in order to organize and standardize the routine care for smokers, thus improving cessation rates in the population treated.

Finally, we would like to emphasize that the Issa Situational Smoking Score and the PAS Comfort Scale are currently undergoing psychometric validation. The principal objective of this communication was to allow other researchers to conduct validation tests in order to validate and endorse the use of these instruments in clinical practice.

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