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Management of nicotine dependence in patients with psychiatric disorders – recommendations of the Polish Psychiatric Association. Part II

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Summary

The development of treatment methods for nicotine dependence has progressed slowly because people with psychiatric disorders are usually excluded from participating in clinical trials. There are several therapeutic options to support smoking cessation, including psychological and pharmacological interventions, which should be offered to smokers with mental disorders. The first step in helping tobacco smokers and nicotine-dependent individuals is the assessment of smoking intensity and confirmation of nicotine dependence. Currently, we have several methods of treating nicotine dependence – starting from education and psychotherapy, through pharmacotherapy and replacement therapy, and ending up with obtaining gradual progress with the application of harm reduction. Pharmacological treatment options include nicotine replacement therapy, varenicline or bupropion. The effectiveness of such interventions can be improved by providing anti-smoking therapy under psychiatric treatment and promoting harm reduction as an acceptable initial therapeutic goal. The harm reduction strategy is an approach that should be taken into account individually, particularly in the case

of individuals unable to stop smoking, patients with limited insight into their illness, patients experiencing an exacerbation of their illness and persistently uncooperative patients. In this paper, recommendations of the Polish Psychiatric Association on the diagnostics and different treatment methods for nicotine dependence in patients with psychiatric disorders are presented.

Key words: nicotine dependence, pharmacological treatment, harm reduction

Introduction

The offer of nicotine dependence therapy should be an essential component of comprehensive psychiatric care. The development of treatment methods for nicotine dependence has progressed slowly because people with psychiatric disorders are usually excluded from participating in clinical trials. There are several therapeutic options to support smoking cessation, including psychological and pharmacological interventions, which should be offered to smokers with mental disorders. Building motivation and readiness to quit smoking is a significant challenge, and hence motivational interventions are needed. The second part of the recommendations reviews the therapeutic options intended for nicotine-dependent individuals with psychiatric disorders, encompassing psychotherapy, pharmacotherapy, and management in a harm reduction paradigm, and presents the Polish Psychiatric Association's recommendations for diagnosing and adjusting the therapeutic offer based on the type of psychiatric disorder. The effectiveness of treatment may be enhanced by reducing smoking as an initial treatment goal, extending the duration of treatment, and offering therapy in conjunction with the treatment of the underlying disease in a mental health care facility.

Diagnosing nicotine dependence

The first step in helping tobacco smokers and nicotine-dependent individuals is the assessment of smoking intensity and confirmation of nicotine dependence, which should be carried out by healthcare professionals when the patient first contacts the healthcare facility [1-4]. Clinical tools may be used to assess smoking intensity, but additional tests are also available, such as the determination of nicotine levels in the blood, saliva or urine (reflecting smoking intensity over the past few hours), cotinine levels (over the past week) and carbon monoxide content in exhaled air. It is also important to assess the severity of the symptoms of nicotine withdrawal syndrome, observed in half of those trying to quit smoking. The vast majority of smokers want to stop smoking, and effective diagnosis of smoking-related problems provides an excellent opportunity for effective intervention. The choice of the most appropriate intervention depends on the patient's condition, the severity of dependence, and the patient's willingness to quit smoking and enter treatment [2].

Dependence and severity assessment

In clinical practice, validated clinical tools are used to assess nicotine dependence, the most common being the Fagerstrom Tolerance Questionnaire (FTQ) and the Fagerstrom Test for Nicotine Dependence (FTND). The FTND is an internationally recognised test for assessing the severity of biological dependence on cigarette smoking. It is a shortened version of the FTQ. With its diagnostic reliability and accuracy confirmed in numerous studies, the test measures dependence dimensionally and places the degree of dependence on a continuum of dependence. It consists of six questions. A score above 6 suggests a high level of physical as well as psychological dependence. Such individuals are at high risk of abstinence symptoms when attempting to quit and are more likely to fail in their efforts to quit smoking permanently. Those scoring below 6 are characterised by a lower degree of nicotine dependence, with a dominant psychological component of addiction. They are more likely to break the habit permanently. Fagerstrom test results correlate with plasma nicotine levels and with physiological parameters of nicotine abstinence syndrome [1, 5-8].

Another tool is the Hooked on Nicotine Checklist (HONC), a 10-question questionnaire to assess tobacco dependence in adolescents. It has become more useful than the FTND in this age group due to the fact that it measures the degree of loss of independence from smoking. It helps detect symptoms signalling nicotine dependence in adolescent smokers [9].

Therapeutic methods in the treatment of nicotine dependence

Doctors and other professionals providing assistance to people wishing to quit smoking can and should offer psychotherapeutic methods and pharmacotherapy to treat nicotine dependence. The best results are obtained by combining psychotherapy with pharmacotherapy. Psychological approaches include self-help programmes, counselling, higher-intensity psychotherapy programmes based on motivational enhancement therapy and cognitive behavioural therapy (CBT), and brief clinical interventions delivered by doctors and other healthcare professionals. The self-help programmes use printed or electronic materials designed to increase motivation and strengthen the readiness to quit smoking, manage withdrawal symptoms and prevent lapses and relapses [2-4].

CBT therapy aimed at helping smokers and nicotine-dependent individuals integrates cognitive approaches (e.g. training involving cognitive coping mechanisms to deal with negative emotions or the desire to light up a cigarette associated with acute or chronic nicotine withdrawal syndrome), behavioural techniques (e.g. changing habits related to anticipation of lighting up a cigarette and avoiding temptation, and ensuring social support outside of therapy) and motivational therapies (e.g. support from the

therapist and strengthening the patient's motivation to quit smoking and maintain abstinence) [10]. CBT therapy can be effectively delivered by either a trained therapist or a healthcare professional, and offers individual and group therapy of varying intensity, from short 10-15 minutes sessions to intensive 50-60 minutes sessions. Studies have confirmed a strong correlation between total treatment time and abstinence maintenance. Modifications of CBT for nicotine-dependent individuals with schizophrenia and depression have been developed to fit the specificities and particular needs of people with psychiatric disorders who smoke heavily [3].

Brief interventions can be delivered by any clinician but have the best effect when provided by healthcare professionals who treat many patients and have relatively little time per patient. The interventions are as short as three minutes, can make a significant contribution to patients' smoking cessation [1] and are applicable to all diagnostic groups, including patients with psychiatric disorders. Brief interventions are particularly effective for three groups of patients: current smokers who wish to quit, smokers who are reluctant to quit at the moment and ex-smokers who have recently stopped. The identification of each smoking patient and offering a short intervention upon visiting an outpatient clinic is of key importance [2].

Forms of nicotine replacement therapy

In terms of tobacco dependence treatment, short-term nicotine administration is considered to be supplementary to behavioural therapy in smokers planning to quit [11]. The various forms of nicotine replacement therapy are available in Poland and worldwide in the form of: chewing gums (may cause dry mouth, dyspepsia, hiccups, heartburn, nausea), patches (local skin reactions in a very high proportion of users, need to be applied to depilated skin or to anatomically hairless areas, sleep deprivation, cardiac arrhythmia, severe morning nicotine craving if patches are used at night), oral inhalers, intranasal sprays (local reactions in the routes of administration), and nicotine tablets. Owing to the risk of cardiac arrhythmias, tachycardia, arrhythmias, chronic coronary syndromes, post-acute coronary syndromes, or other conditions consistent with a high cardiovascular risk are relative contraindications to such therapy. The use of the described forms of nicotine replacement therapy is regarded as troublesome, potentially harmful to patients with a cardiovascular history and hardly effective.

Pharmacological treatment of nicotine dependence

Pharmacotherapy approved by the FDA covers different forms of nicotine replacement therapy, as well as bupropion and varenicline. Studies indicate that smokers who maintain the combination of behavioural treatment and drugs supporting smoking cessation quit smoking more frequently than those who receive minimum intervention [12].

The FDA confirmed the effectiveness and safety of the two above-mentioned drugs in the treatment of nicotine dependence. In a randomised placebo-controlled clinical trial (8,144 patients in 140 centres in 16 countries), it was confirmed that varenicline (1 mg twice a day), bupropion (150 mg twice a day) and nicotine patches (21 mg/day with gradual reduction of the dose) were more effective in helping smokers quit smoking in comparison with placebo [13]. Among 4,074 patients with a psychiatric history, approximately 70% had affective disorders, 19% had anxiety disorders, 9% had psychotic disorders, and less than 1% had borderline personality disorder. Clinically relevant neuropsychiatric side effects of the drugs occurred with a similar low frequency (approximately 3%) in all groups of treated patients without psychiatric diagnoses. Importantly, varenicline and bupropion turned out to be more effective as pharmacological treatments supporting smoking cessation, regardless of whether the participants of the trial had been treated in the past due to psychiatric disorders or not.

On the basis of conclusions from the same trial in a group of people with different psychiatric disorders, it is possible to state that varenicline, bupropion and nicotine patches are well tolerated and effective in adults with psychotic, anxiety and mood disorders. The relative effectiveness of varenicline, bupropion and nicotine replacement therapy in comparison with placebo did not differ in the groups of psychiatric disorders. The best rates of abstinence were in the group applying varenicline (OR = 3.0) in comparison with bupropion, nicotine patches and placebo. The rate of abstinence in the groups applying bupropion (OR = 1.9) and nicotine patches (OR = 1.8) was higher than in the placebo group for all diagnostic groups [14].

Obviously, as in each case of introducing a new treatment, drugs may be applied after taking into account the patient's somatic and mental condition, contraindications and possible adverse effects. The safety of their application in terms of severe cardiovascular complications and occurrence of neuropsychiatric symptoms was confirmed in a cohort of 164,766 patients treated in Great Britain for nicotine dependence with varenicline, bupropion and nicotine replacement therapy in observations from 2007-2012 [15].

Cytisine, a natural alkaloid obtained from the seeds of the common laburnum, has an effect similar to nicotine and binds to nicotinic receptors much stronger. It is available in Poland without prescription as an auxiliary supplement for quitting smoking. Due to the lack of EBM trials published in international scientific journals, it is impossible to present data on its actual effectiveness.

Harm reduction in dealing with nicotine-dependent individuals

A harm reduction paradigm approach is particularly relevant for helping patients with nicotine dependence. Harm reduction is defined as any action that aims to mini-

mise the various harms and risks associated with smoking. The aim of harm reduction programmes is neither to discontinue the use of a psychoactive substance nor to cure the addiction completely, the latter being considered almost unattainable in this approach [11]. Harm reduction was initially applied in people with drug dependence. Its purpose was to keep drug users alive and healthy and, in particular, to prevent fatal overdoses of addictive substances and the spread of infectious diseases (hepatitis, HIV) through drug injection.

Harm reduction programmes cover pharmacological, behavioural and educational methods. These include substitution therapy regimens (e.g. methadone use for opioid users), which involve the administration of smaller amounts of either the same substance to which the patient is addicted or a similar one. Harm reduction efforts also involve life-saving pharmacological interventions, such as the administration of naloxone by non-medical professionals as an antidote to opioid drug overdoses.

Other programmes within harm reduction include education and training for substance abusers in overdose management, safe injections, safer sexual behaviour, management of HIV, HBV, HCV infection (prevention, testing, pre – and post-exposure prophylaxis), prevention of mother-to-child and partner-to-partner transmission of infection, and referrals for HAV and HBV vaccination. Harm reduction also provides information on access to medical care and addiction treatment and offers programmes for the distribution of needles and syringes, condoms, overdose kits, tests for psychoactive drugs and viruses, injection equipment disposal kits, wound care supplies, medication boxes, educational materials, safe smoking kits, etc. [11, 16].

There is currently ample scientific evidence of the effectiveness of harm reduction programmes [17, 18], and yet the approach is still controversial in many circles and is sometimes wrongly regarded as an unprofessional method with no application in modern medicine. Opponents of this strategy emphasise that harm reduction does not lead to abstinence but actually encourages psychoactive substance use. Some have postulated that substitution programmes are a step towards the legalisation of some drugs and, in the case of tobacco, a disincentive to maintain abstinence [16, 19].

Various measures were taken from the 1950s onwards in the strategy of reducing the harm and risk of smoking, with the introduction of filtered cigarettes and then low-yield cigarettes, although these efforts sometimes resulted in users smoking more heavily because the modified cigarettes provided less nicotine. There has been no reliable research confirming harm reduction as a result of these modifications [20]. The first scientific approach to tobacco harm reduction was reflected in a report by the US Academy of Sciences (*Clearing the smoke. Assessing the science base for tobacco harm reduction*) in 2001 [21]. Harm reduction methods with proven efficacy in nicotine dependence include certain pharmacological methods (e.g. nicotine replacement therapy), e-cigarettes and other innovative technologies that are increasingly used to

help nicotine users. One such example is modified risk tobacco products (MRTP), which were introduced as a separate product category for the first time in the US in 2009. Among these, smokeless tobacco products, including heat-not-burn and, especially in Scandinavian countries, oral snus, are most popular. Tobacco smoke contains highly addictive components (harman, norharman and acetaldehyde, acting as monoamine oxidase inhibitors), while smokeless products are devoid of these and thus have a much lower addictive potential [19, 21].

Potential harm reduction with novel tobacco products (NTP)

Heat-not-burn (HNB) products, which produce vapour without burning tobacco leaves, were developed with the expectation that the number and amount of chemicals in the vapour from such products would be reduced compared to the smoke from conventional cigarettes intended for smoking. Several studies have shown that lower levels of chemicals correlate with lower toxicity [16, 19, 22, 23].

Tobacco smoking impairs mucociliary clearance (MCC), as evidenced by prolonged transit time in the saccharin test (STTT). Polosa et al. [24] have demonstrated that ex-smokers have similar STTTs to those that have never smoked. Ex-smokers who switched to exclusive regular use of non-burning nicotine delivery systems (i.e. e-cigarettes (ECs) and heated tobacco products (HTPs)) showed similar saccharin transit times as those that have never smoked and ex-smokers. The findings of the study indicate a limited negative effect of NTP and EC on mucociliary clearance [24].

Given that many patients with COPD smoke despite their symptoms, it is important to understand the long-term health impact of replacing cigarettes with HTPs. Polosa et al. [25] monitored COPD patients' health parameters for three years as they significantly reduced or stopped smoking cigarettes after switching to HTPs and compared them with a group of age – and gender-matched COPD patients who continued to smoke. Patients using HTPs showed a significant reduction in annual exacerbations of COPD. Additionally, there were significant and clinically meaningful improvements reported by patients at all three time points in the HTP cohort, including a 6-minute walking distance. No significant changes were observed in COPD patients who continued to smoke. This study is the first to describe the long-term health effects of HTP use in patients with COPD. Sustained improvements in respiratory symptoms, exercise tolerance, quality of life and exacerbation rates have been observed in COPD patients who have abstained from smoking or significantly reduced cigarette smoking by switching to HTPs [25].

Murkett et al. [26] assessed the relative risk hierarchy (RRH) of 13 nicotine products through a systematic review of the scientific literature and analysis of the best available evidence. A total of 3,980 publications were identified and analysed, and a final analysis

was conducted for 320 studies. Health risk data for each product were extracted, and the level of exposure to harmful compounds was evaluated. The products were analysed for toxin emissions and epidemiological data to provide a combined risk score for each nicotine product. It has been shown that combustible tobacco products dominate the top of the RRH. Dipping and chewing tobacco ranked well below combustible products, but far above NTPs. Products with the lowest risk included electronic cigarettes, tobacco-free pouches and nicotine replacement therapy [26].

Summary

Regardless of whether people with psychiatric disorders have a motivation to stop smoking, it is necessary to make therapeutic interventions for obvious reasons with the patient's welfare in mind. The best results in terms of the target maintenance of abstinence are achieved with an integrated treatment approach that combines pharmacotherapy with motivational enhancement intervention and cognitive behavioural therapy tailored to the abilities and needs of mentally ill smokers in routine psychiatric care. Such interventions as brief advice from a healthcare professional, telephone helplines and printed self-help materials may also make it easier to quit smoking. We may encounter more frequently new interventions supporting smoking cessation, as well as mobile devices and social media, which turn out to be helpful and increase the number of people who quit smoking [27]. They may be helpful, especially for younger patients.

Pharmacological treatment options include nicotine replacement therapy, varenicline or bupropion, or a combination of two drugs with different mechanisms of action, subject to contraindications and their side effects. Some studies indicate that the use of atypical antipsychotics in schizophrenic patients may support the maintenance of nicotine abstinence when combined with motivational intervention and nicotine replacement therapy or bupropion.

The difficulty of achieving and maintaining abstinence from nicotine as an optimal therapeutic goal is evident in most patients with mental illness, so more realistic goals should be set to ensure that health harms are reduced. The available pharmacological treatment strategies for people with mental illness who are addicted to nicotine have little efficacy, as with other dependencies. The effectiveness of such interventions can be improved by providing anti-smoking therapy under psychiatric treatment and promoting harm reduction as an acceptable initial therapeutic goal [28, 29].

Patients with psychiatric disorders smoke more during periods of exacerbation, and the success of various methods aimed at smoking cessation is severely limited among this patient group. Therefore, a harm reduction strategy (unrealistic significant reduction in smoking or switching completely to novel tobacco products), as an ap-

proach best suited to the capabilities and needs of patients with mental illness, and an integrated care strategy have the potential to improve the effectiveness of existing smoke-free programmes targeting smokers with mental illness. In this approach, the use of nicotine replacement therapy in various forms at adequate doses, together with other nicotine delivery methods, such as tobacco heating systems and standardised e-cigarettes, should be a priority in the treatment of people with psychiatric disorders.

As nicotine dependence is a substance use disorder, mental health professionals are best qualified to provide interventions in this area. It is, in fact, their duty to do so, especially in view of the significant negative impact of smoking on health, psychotropic drug metabolism, morbidity and mortality. Creating and implementing training programmes to increase the awareness and skills of mental health professionals in identifying and treating nicotine-dependent individuals is, therefore, of great value.

Recommendations of the Polish Psychiatric Association on the treatment of nicotine dependence in individuals with psychiatric disorders

1. Individuals with psychiatric disorders who smoke tobacco should receive treatment for nicotine dependence integrated with a comprehensive psychiatric treatment plan to help them reduce or completely stop smoking.
2. All healthcare professionals should be educated on how to deal with tobacco smokers and how to treat nicotine dependence. Psychiatrists and GPs should receive training on the diagnosis and treatment of nicotine dependence, a topic that should be included in speciality training programmes.
3. Due to the high prevalence of nicotine dependence among people with psychiatric disorders, the threat to their health and the high level of suffering caused by it, as well as the significant socio-economic impact of this dependence – preventive, educational and therapeutic interventions as well as pharmacological treatment should be covered by the public health system in Poland.
4. Treatment of people with mental disorders with nicotine dependence should incorporate an approach that combines pharmacotherapy with motivational enhancement intervention and cognitive behavioural therapy tailored to the abilities and needs of people with mental illness.
5. The harm reduction strategy should be integrated into the treatment of patients with psychiatric disorders who are unable to stop smoking, patients with limited insight into their illness, patients experiencing an exacerbation of their illness and persistently uncooperative patients.
6. A harm reduction strategy should be taken into account at each stage of treatment for nicotine dependence, as it may be difficult or impossible to use drugs registered for the treatment of nicotine dependence in psychiatric patients. Heat-not-burn

products, i.e. products that deliver nicotine by heating treated tobacco, may be considered as an option.

7. Specific recommendations for therapeutic management with respect to smoking cessation or reduction should be adjusted individually to the type of psychiatric disorder and the severity of psychopathological symptoms.

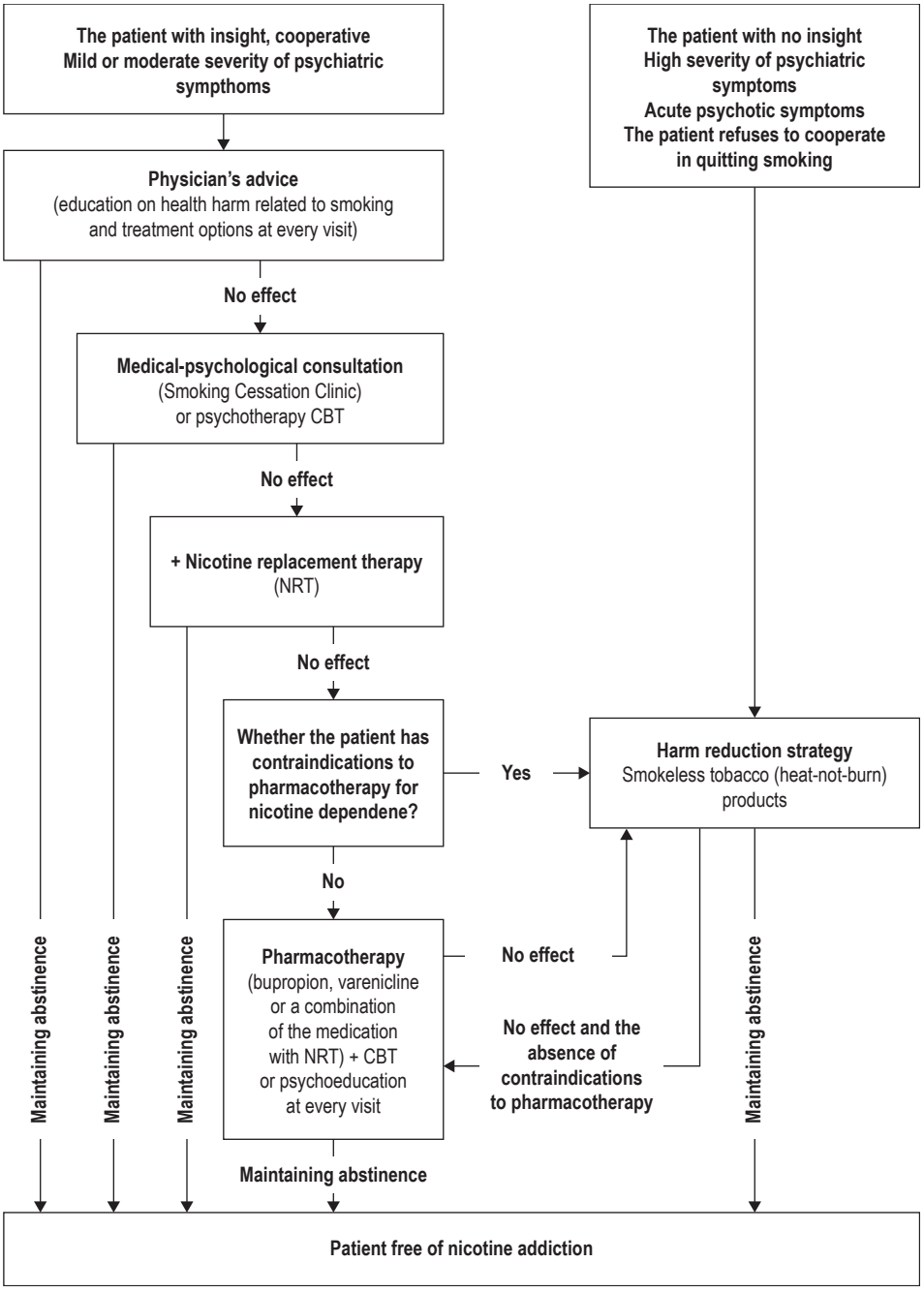

Figure 1. **Algorithm of therapeutic support for nicotine-dependent individuals with psychiatric disorders**

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