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Characteristics of Maras Powder which is a Cultural Alternative to Cigarettes and its Effects on Health: A Literature Review

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Abstract

Tobacco epidemic is defined as an important public problem in developed and developing countries. It is stated that the use of tobacco and tobacco products cause the death of one individual out of ten and that it takes one of the first places among preventable causes of death. Maras powder which is form of smokeless tobacco is achieved by mixing a tobacco type known as *Nicotiana rustica* Linn. and ash and it is in particular being used as an alternative to cigarettes or with cigarettes in the Mediterranean region in Turkey. Maras Powder is used by sniffing tobacco powder or sucking or chewing it by placing it between the gums and the cheek. The purpose of this literature compilation is to evaluate studies on the characteristics of maras powder and its effects on health and the results obtained in these studies. With this purpose science direct, cochrane library, ulakbim and "medline/pubmed" databases have been scanned and studies on this subject have been analyzed by searching for key words, "Smokeless tobacco/Maras powder," "Smokeless tobacco" and "Maras powder." In the analyzed studies, it has been seen that maras powder has been accepted as a tobacco product with law no: 4207 and that its production, sale and use in closed spaces has been banned. It has been determined that maras powder affects human health and that it has negative effects on biochemical, immunological and cardiovascular system.

Keywords: Smokeless tobacco; Maras powder; Human health; Protection from tobacco

Introduction

After the harmful effects of tobacco which has been used in various manners since the day it was discovered became known around the middle of 20th century, a search for less harmful or harmless tobacco products began. Cigarette types which appeared in different countries under different names and different shapes with the use of different substances but having the same content are products which give off smoke and resemble cigarettes (cigars, tobacco pipes, nargileh, Persian tobacco) and smokeless tobacco types (chewing tobacco and snuff tobacco used nasally) whose names differ due to the differences in how they are processed and used without the effect of burning. Smokeless tobacco types are used either by sniffing tobacco powder in snuff form or by sucking chewing tobacco between gums and the cheek or by chewing it. Studies on tobacco have shown that all tobacco products which contain nicotine cause addictions and that all forms which are presented by changing the shape of tobacco are deadly [1-7].

Another form of smokeless tobacco is the substance locally known as "maras powder" which is used as chewing tobacco; grown, produced and used widely in the East Mediterranean region and South-East Anatolian region, in particular in the cities of Kahramanmaras and Gaziantep whose use has increased in the recent years and began to be used throughout the country. Despite its harmful effects, the number of people using smokeless tobacco has been soaring up. The studies show that use of smokeless tobacco in individuals who are fifteen and younger has reached 25% [8,9].

The purpose of this study is to analyze studies which deal with the characteristics of maras powder, its effects on health and evaluate the results obtained in these studies.

Method

In this study in which literature review method has been used, the review has been carried out in Science direct, Cochrane Library, Ulakbim and Medline/PubMed databases in both Turkish and English in december, 2017, without setting up a limitation concerning the year.

The Turkish literature review has been carried out in Turkish using the "Dumansız tutun, agızotu/marasotu" key words, while the English literature review has been carried out using the "smokeless tobacco/maras powder" key words. In the literature review, compilations, case studies and research articles have been analyzed and a total of 40 articles (Science direct 10, cochrane library 2, Ulakbim 8, Pubmed 20) and 29 articles in full text have been accessed in english and turkish on the subject.

The studies included in the review dealt with the following subjects:

1. Maras Powder (smokeless tobacco) addiction,

2. Similarities or differences between maras powder and cigarettes,

3. Effects of maras powder on health,

4. Randomized controlled/experimental studies on the effects of maras powder on health.

Studies not included in the review consisted of the following:

1. Studies dealing with maras powder addiction, whose full text was not accessed,

2. Studies which did not deal with the effects of mara powder on health,

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3. Studies involving treatment methods of this addiction.

The studies included in the scope of the study were evaluated due to dealing with:

1. The characteristics of maras powder,

2. Effects of maras powder on health. 12 articles which were found to involve the essence of the subject have been included and analyzed in the study.

Results

11 of the articles selected for this study in which the effects of maras powder on health were analyzed were written in Turkey and 1 was written in Turkmenistan. The characteristics of the selected articles have been presented in Table 1.

When the methods and characteristics of the studies included in this study were analyzed, it was seen that they were carried out in 2003-2017 and that the number of study groups and the samples were different. It was observed that groups which used maras power, smoked cigarettes and did not use either of these were compared and that some of the groups were reviewed and some measurements were taken in these groups. Four of the studies dealt with the effect of maras power on the cardiovascular system, 2 dealt with the hematological parameters, 1 dealt with the respiratory system, two dealt with the immunity system, two dealt with oral and dental health and done dealt with the effect of maras powder on paralysis and stokes.

When the articles within the scope of the study were analyzed, it was seen that:

Writer name/year	Research methods and sample characteristics	Which system it affects / purpose	Results and conclusion
Guven et al. 2003/Turkey [4]	Experimental study Group 1 Users of Maras Powder, n=45 Group 2 Cigarette smokers, n=32 Group 3 Control group (not using either of them) n=30	Cardiovascular System To determine whether Maras Powder has negative effects on the cardiovascular system as much as cigarettes	Conclusion: It has been concluded that Maras Powder is as harmful as cigarettes and has negative effects on the cardiovascular system
Guven &Tolun, 2012/ Turkey [10]	Experimental study Maras Powder users n=48 Cigarette smokers n=50 Control group (not using either of them) n=45	Cardiovascular System To determine the effects of Maras Powder use and smoking cigarettes on the cardiovascular system and nitric oxide level	Conclusion: It has been determined that Maras Powder has negative effects on the cardiovascular risk parameters and nitric oxide level and is harmful as much as smoking cigarettes
Sucaklı, Ozkan, Inci, Celik, Keten, & Bozoglan, 2013/Turkey [11]	Experimental study Maras Powder users n=32 Control group (not using Maras Powder) n=30	Cardiovascular System To analyze the relationship between karotis intima media thickness and blood pressure	Conclusion: It has been concluded that increase in karotis intima media thickness might be related with systolic blood pressure
Keten, Olmez, Ucer, Isık, Yıldırım, & Celik, 2017/ Turkey [12]	Review Maras Powder users n= 140	Cardiovascular System To determine the acute effects of Maras Powder on blood pressure and heart rate	Conclusion: It has been shown that use of Maras Powder acutely and significantly increases heart rate, systolic blood pressure and diastolic blood pressure
Kılı c, Okur, Yıldırım, Inanc & Kurutas, 2004/ Turkey [1]	Experimental study Maras Powder users n= 92 Control group (not using either of them) n= 68	Hematological Parameters To analyze the effects of nicotine found in smokeless tobacco on hematological parameters	Conclusion: It has been concluded that Maras Powder might cause chronic inflammatory changes in various cells, organs and systemic circulation both due to the nicotine it has and nitrosamine levels specific to tobacco
Koksal, Guven, Cetinkaya, & B uy ukbe se, 2004/ Turkey [4]	Experimental study 1. Grup Users of Maras Powder and Cigarette Smokers n=18 2. Grup Maras Powder users n=28 3. Grup Cigarette smokers n=24 4. Control group (not using either of them) n=24	Respiratory System To evaluate whether use of Maras Powder has harmful effects on the functions of respiration	Conclusion: It has been concluded that Maras Powder has less effects on the lungs and the respiratory tract since it is not inhaled
Keten, Keten, U cer, Yıldırım, Hakkoymaz, & Isık, 2015/Turkey [13]	Experimental study Maras Powder users n= 60 Cigarette smokers n= 60 Control group (not using either of them) n=60	Oral To determine the rate of carrying oral Candida among cigarette smokers and users of Maras Powder	Conclusion: It has been stated that types of Candida might cause opportunistic infections in patients whose immunity is repressed
Begaliyev, Sultanulı & I sıkov, Agaoglu, 2017/ Turkmenistan [14]	Review Total 7047 Below 14 years of age: 1906, Over 14 years of age: 4231 Upper grade students: 910	Oral To determine the effect of Maras Powder on the oral mucosa layer	Conclusion: It has been state that Maras Powder might firstly cause redness and swellings, secondly White plaque, rashes and sores since it contains nicotine, lime and other preservatives
Koksal, Inan c & Kılın c 2004/ Turkey [15]	Experimental study Maras Powder users n=47 Cigarette smokers n=39 Control group (not using either of them) n=33	Immune System To determine serum ADA activity in cigarette smokers and Maras Powder users	Conclusion: It has been stated that smoking cigarettes and using Maras Powder increases serum ADA activity

Kose, Yazıcıoglu, Celik, & Gencer, 2011/ Turkey [2]	Experimental study Maras Powder users n=21 Cigarette smokers n=27 Control group (not using either of them) n=24	Increased Oxidative Stress To determine the effects of Maras Powder on oxidative stress and compare it with cigarette smokers	Conclusion: It has been concluded that Maras Powder is effective as much as cigarettes in the increase of oxidative stress seen in the pathogenesis of many chronic diseases
Demirhan 2006/ Turkey [16]	Experimental study Maras Powder users n=40 Control group (not using either of them) n=20	Chromosome Anomaly To analyze the effects of the use of Maras Powder on chromosome anomalies in human peripheral lymphocytes	Conclusion: It has been stated that CA frequency being high causes genotoxic risk for Maras Powder users
Utku, Atilla, Yıldırım, Cetin, Gi si, Gok ce, 2015/ Turkey [17]	Experimental study Maras Powder users n=50 Control group (not using either of them) n=32	Circulatory System To analyze the effects of Maras Powder on cerebral blood stream rate	Conclusion: It has been stated that increase in cerebral blood stream rate might be an indicator for paralysis

Table 1: Studies which show the effects of maras powder on systems.

-Smokeless tobacco type maras powder is presented in different regions and countries as “maras powder”, “crazy tobacco”, “elephant killer”, “hasankeyf tobacco”, “turkish tobacco”, “aztec tobacco” or “East Indian tobacco,”

-Maras powder is achieved by drying the leaves of the *Nicotiana rustica* Linn tobacco plant, mixing these with ash obtained from walnut shells or vine stems in 1/2 or 1/3 proportion and used orally by placing it between the lower lip and the teeth.

-After it is held in the mouth for 10-25 min, the mixture which causes numbness in the chin creates nicotine addiction.

-Maras powder is sold in nylon bags of 15-20 gm and is sufficient for its user after having used it an average of 1-2 depending on the amount.

-It is used as an alternative to cigarettes and since smoking cigarettes in closed areas have been prohibited, it is cheaper than cigarettes and inhaling smoke as is the case in smoking cigarettes is not in question creates the view that it is not as addictive and harmful as cigarettes and this view causes an increase in the number of users.

-It has been seen that Maras Powder has been defined as a tobacco product under Law no: 4207 and its production, sales and use in closed areas have been prohibited [2,10-18].

When the findings and results of the reviewed studies were analyzed, it has been determined that maras powder carries almost the same alkaloids as cigarette tobacco and has the same amount of harmful effects on human health as cigarettes.

Discussion

As a result of the campaigns against smoking cigarettes in the recent years as a result of the health problems caused by cigarettes and tobacco, decrease in the number of cigarette smokers has been observed in many countries. However, an increase in use of smokeless tobacco has been seen in countries such as America, Suan, Saudi Arabia and Turkey [19-21]. Even if the health problems caused by use of smokeless tobacco cannot be compared with the dimensions of health problems caused by cigarettes, it is considered that the increasing rate of use of smokeless tobacco might cause major health problems in the years ahead. A majority of the diseases related to use of tobacco has not been clearly solved. When we evaluate the studies above, it can be seen that maras powder plays a significant role in the formation of many diseases such as cardiovascular system diseases, oral and dental health, nervous system, urinary system, infections and paralysis [22-27]. While cigarettes are regarded as the main reason for various types of cancers, primarily larynx and lung cancers and respiratory system diseases, it has been stated in the mentioned study that mara powder has a lesser effect on the respiratory system since its absorption is done through the skin. It is also stated that use of smokeless tobacco is an important risk factor for cardiovascular system diseases since it causes an extreme incase in the level of nicotine in the blood [3]. When we reviewed these studies, as have seen that maras powder has been stated to be as harmful as cigarettes for the cardiovascular system. Similarly, it has been determined in the study that cerebral blood flow speed is significantly high in maras powder users and it has been stated that this might an indicator for paralysis [17]. In our study, it has been determined that individuals who use Maras Powder are subject to a high amount of nicotine and that they have a significant level of redness, swelling and deformity in their oral and dental mucosa. It is considered that this is due to the duration the individuals keep the Maras Powder in their mouths, because the duration of use of Maras Powder which is placed between the teeth and the cheek changes in accordance with the addiction level of individuals. Some individuals even sleep with Maras Powder in their mouths. This situation reduces the chance of overcoming nicotine addiction and quitting Maras Powder. It has been determined that use of Maras Powder negatively affects the cellular immune reaction and that individuals become more susceptible to infections [28-31]. Similarly, the reviewed studies show that oxidative stress and ADA activity in individuals who use maras power orally increases and that their iron and leucocyte levels are high [1,2,15]. These findings can be interpreted as maras powder causing a breakdown in the defense system of the body and making the body susceptible to diseases. In addition, it is stated that it is not known where and by whom Maras Powder is produced and in which conditions it is made ready for use and that since it is packaged in plastic bags and the storage conditions are individually carried out at homes, it causes a risk for human health.

As a result, the studies show that maras powder which is considered to be harmless among the public, less harmful or harmless compared to cigarettes and used to quit smoking as well has similar characteristics with cigarettes and that it is one of the most important risk factors which threatens public health. Health education which is an efficient method in protecting and improving health is also effective in acquiring healthy lifestyle behaviors [32-34]. Nurses in all areas, in particular public health nurses who come across individuals who use first degree tobacco and individuals who do not use tobacco can frequently meet with these individuals and strengthen their communication and help them understand and deal with the harmful and negative effects of tobacco and tobacco products by giving them information.

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