SMOKING CESSATION IN WOMEN

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ABSTRACT

More women are starting to smoke and fewer go on to achieve cessation.

Physiological and psychological factors particular to females, as well as socio-economic influences are considered. Positive approaches to the stages of cessation and physician strategies known to be effective are outlined. The use of prescription medications including nicotine replacements, buspirone, seratonin re-uptake inhibators, clonidine, and antidepressants is discussed.

RESUME

De plus en plus de femmes commencent à fumer, mais celles qui réussissent à cesser sont de moins en moins nombreuses.

Des facteurs physiologiques et psychologiques particuliers aux femmes, des influences socio-économiques, des approches positives des étapes de l'abandon du tabac et des stratégies médicales dont l'efficacité est éprouvée font l'objet d'un examen. On discute du recours aux médicaments d'ordonnance, y compris les produits de substitution de la nicotine, le buspirone, les inhibiteurs de la réabsorption de la sérotonine, la clonidine et les antidépresseurs.

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INTRODUCTION

Tobacco is a potentially toxic substance whether smoked or chewed. The challenge for all of us is to prevent the acquisition of nicotine addiction and successfully support patients who are trying to quit. There has been good research in the past decade pulling together knowledge from medical, sociological, and psychological fields. The most effective control of nicotine addiction is at the legislative and government policy level. Advocacy by physicians has a major role to play in this area,[1] for example through such organizations as 'Physicians For a Smoke Free Canada.'[2] Pushing for a complete ban on tobacco advertising, restrictions on promotions aimed at young women, new rules for sponsorship, and restricting sales to young people are vitally important, as is insisting on new rules for packaging and labelling, and greater government control over product regulation and reporting requirements of tobacco manufacturers. Recent suggestions have been made that tobacco should be put into a permissive regulating framework which would subject it to the same kind of government regulation that exists for such hazardous products as pharmaceuticals and pesticides.

SMOKING RATES AMONG WOMEN

Thirty years ago, 50 percent of men in Ontario were smokers and 32 percent of women smoked. In 1993, smoking rates for men had dropped almost by half to 27 percent, but declined only slightly in women down to 28 percent.[3]

GENERAL INFORMATION ABOUT TOBACCO HABIT ACQUISITION AND SMOKING CESSATION

Prochaska[4] describes a very predictable path which nicotine addicts follow:

Acquisition

Alarmingly, children may start to experiment with tobacco when they are as young as seven or eight years old, and many smokers admit that they were regular users by the age of 18.[5]

Denial

This is the second stage. Smokers and other addicts go through a variable period of time when they deny that the substance is having any negative effects on their current health, and express complete disbelief that it is likely to have any long range consequences for them. Denial is particularly strong in adolescents who often feel invincible. No amount of lecturing, nagging, telling horror stories, or showing frightening pictures at this stage will budge an addict out of denial. Health workers must use other strategies. Eventually, most addicts do reach a stage where they begin to contemplate quitting.

Contemplation

Women start to collect ideas from a variety of sources, both formal and informal, within the health care system, and start to consider which particular method they might use when they are ready to quit smoking. This is when physicians can provide encouragement and appropriate health information.

Preparation/Action

Cessation of smoking itself is a major step, and although stopping smoking or chewing tobacco may be relatively easy, it is much harder to stay tobacco free. Maintenance is the big challenge in smoking cessation for both patients and health care professionals.

Maintenance

To be declared a "non-smoker," an individual must be tobacco free for five continuous years.

SPECIFIC STRATEGIES FOR INTERVENTION AT EACH STAGE

There are some general ways of helping people at each of these stages which are similar for men and women. By far the most important intervention is to prevent any girl from ever starting to smoke at all. Several Public Health campaigns at the moment directed to children as young as kindergarten age are designed to do this and should be supported.[6] Once a smoker is hooked and in denial, health care workers need to be very aware of the dynamics of this situation. The widely recommended basic intervention for any health care worker is the use of a phrase like "as your physician I am concerned about your health and I want you to know that the best thing you could do for your health is to quit smoking. I would be happy to help you anytime." That brief statement has been shown to be extremely powerful based on retrospective studies[7] looking at what influenced patients to quit. It is very important that health care workers take advantage of this opportunity every time a woman consults them, no matter what the problem.

Health care workers have to be prepared to be persistent because smoking cessation is a slow process that takes a number of years. Denial as a stage may last for a decade or more, and the process of thinking about quitting, trying to quit, failing, and trying again can also take five or ten years. The important thing for physicians is not to become discouraged. It may be necessary to make your brief statement of friendly concern, understanding, and support repeatedly, year after year. Success should never be measured alone in terms of how many women quit smoking but rather in how many women move from one stage to the next. Multiplied over a large number of physicians, this will add up to real and significant improvement in the health of a large number of women.

The behaviour modification method for smoking cessation is well established. Initially, the woman monitors her smoking behaviour for at least a week. She chooses a future date upon which to quit. Making this public to friends and family is a very effective incentive. Careful analysis of the smoking behaviour: chairs she likes to sit in; beverages she likes to combine with tobacco;

times when she feels a cigarette is really needed, all have to be considered, and behavioural or environmental substitutions planned. This method is effective and is strengthened if combined with other pharmacological interventions within health care settings.

Many people quit successfully on their own when they are ready. Physicians should point out that "cold turkey" can be initiated very successfully in a number of specific situations. One is to change to a different environment, particularly one that discourages smoking, for instance a health/sports vacation. Another is during an acute respiratory tract infection, while a person is already feeling miserable, and has a socially acceptable reason to miss a day or two of work to cope with withdrawal.

Times of high stress are not the right time to quit smoking. A woman in the middle of a marriage breakdown, unemployed, or coping with medical problems including major obesity may need to work on those things first to build confidence and readiness. Physicians can be valuable resources to such a patient by helping her to prioritize her steps in life changes.

Maintenance is an ongoing challenge for the rest of a smoker s life. **Urges**, although they may last less than a minute, can occur very frequently, particularly in the early stages of cessation and can be extremely strong. Helping a woman to decide in advance what her strategy for dealing with an urge will be is very important. Substitute activities including reaching for and unwrapping a stick of gum, walking to a water fountain and getting a drink of water, or changing activities or location can be extremely effective.

DEALING WITH RELAPSES

In any addiction counselling we know now that "falling off the wagon" needs to be discussed in advance with patients and their families, as being an expected part of the cessation process. **A relapse** does not have to be perpetuated. Smoking one or two cigarettes one evening does not mean that the woman has to get up the next morning and go back to smoking a pack a day. In addition, a relapse can be an important learning experience. Individuals, either on their own or with the help of a physician, can look at the factors which triggered the relapse and, using behaviour modification techniques, make sure that they do not get into similar situations again by pre-planning, visualization or other useful psychological methods.[8]

SPECIAL ASPECTS OF WOMEN AND SMOKING

Women may be more sensitive than men to tobacco toxins on a dose related basis because of their generally smaller body mass and different enzyme systems.[9] Some of the pharmacological effects of nicotine are particularly noticeable in women, and withdrawal effects may be more severe.[10]

The appetite suppressant effect and resulting lower body weight are well known to smokers. Health care workers should emphasize that the effect is one of smokers being on average underweight,[11] and that the risk of smoking far outweighs the risk of increased weight.[12]

The pharmacological effects of nicotine are well described and quite powerful. Some of them are very appealing to women. Nicotine enables people to concentrate better, to suppress anger, and also alleviates boredom, anxiety, and irritability. These are all effects that are highly valued in the expected behaviour of women in mainstream Western civilization. It is more acceptable for a woman in a health care or pink collar job to take a break and have a cigarette than for her to lose her temper with her boss, her client, her partner or her children. Any substance that can help women to work longer and harder will fit with the image that many women hold of themselves as reliable, hardworking people.[13] The challenge is to help women to find other ways of expressing anger, frustration or boredom which are socially acceptable and more effective in resolving the underlying problems.

DEPRESSION AND SMOKING

Depression is highly prevalent in women. Female identical twin studies and other research suggest that genetic factors may predispose both to smoking and major depression.[14] There are well known risk times including the post-partum period when women may experience dysphoria, the blues, or frank clinical depression. The fluctuations of the menstrual cycle certainly affect mood. Nicotine has been shown to have a mild anti-depressant, amitriptyline-like effect. Smokers may often be self-medicating their negative moods. Stopping smoking may precipitate a more major depression.[15-19]

Recent papers suggest that anti-depressants may be a valuable pharmacological addition to smoking cessation interventions. A number of large, well designed, clinical trials is currently underway to test this hypothesis.[20]

NICOTINE ADDICTION AND USE OF REPLACEMENT AGENTS AND OTHER MEDICATION

The strength of the addiction to nicotine is now considered to be as powerful as that to heroin.[21] This is because the "hit" in smoking is very rapid and the positive effects of inhaled nicotine very rewarding, thus, perpetuating the urge to have another hit within an hour or two of the previous cigarette as the blood levels of nicotine drop. Withdrawal effects may be particularly noticeable in the morning upon awakening.

PHYSIOLOGY OF NICOTINE ADDICTION

Nicotine has potent pharmacological effects. In the brain, at low doses it produces stimulation and wakefulness, in larger doses sedation, and in toxic amounts confusion and coma. Initially, it produces a rise in blood pressure and a drop in heart rate, a rise in respiratory rate, a decrease in muscle fatigue, an increase in perspiration and salivation, and increased bowel and bladder activity. These effects can produce rewarding sensations which perpetuate the addiction. Withdrawal produces a number of unpleasant signs and symptoms. There are cravings for nicotine; instead of mild sedation there can be irritability, restlessness, anxiety, insomnia, difficulty in concentration, drowsiness, increased appetite, constipation, headaches, and an increased cough. This latter is very distressing to women with chronic respiratory disease. The peak of withdrawal is somewhat variable but in the acute stage can last for three to five days. Unlike withdrawal from opiates or alcohol, most of the nicotine effects can be reversed quite rapidly, within 24 hours.[22] The withdrawal effects of nicotine are particularly characterized as an exaggerated response to anxiety, and sleep disturbance can be a notable feature. Use of diazepines during acute nicotine withdrawal is less effective, however Clonidine has been suggested.[10]

Clonidine (Dixarit) is an anti-hypertensive agent which is also used sometimes in the treatment of menopausal flushing.[23] Trends towards greater efficacy from clonidine for women have been reported in several smoking cessation studies.[10] The authors speculate that this may be due either to possible higher plasma clonidine concentrations in women or their greater susceptibility to withdrawal symptoms. Adverse effects during clonidine therapy for smoking cessation are common, and studies indicate that transdermal nicotine or other nicotine replacement therapies may be tolerated better, and should be the first line of therapy.

Clonidine is suggested for situations where withdrawal symptoms are intense or sedative effects may be desirable, or when the patient is under treatment for withdrawal from multiple drug use. It may be started most appropriately after an initial day of full nicotine replacement when severe withdrawal symptoms are not being well controlled. Its main efficacy is related to acute nicotine withdrawal, and treatment is not recommended to extend for more than three or four weeks.

Buspirone has been shown to be effective in reducing craving, anxiety, irritability, restlessness, and sadness in smoking cessation compared to a placebo.[24] This drug is a centrally acting seratonin re-uptake inhibitor used in the treatment of generalized anxiety disorder.

NICOTINE RESIN AND PATCH

Nicotine replacement agents have provided a major step forward in smoking cessation.[25] The nicotine resin (not really a chewing gum) is used like chewing tobacco to allow absorption of nicotine through the buccal mucosa. It can be very effective when prescribed with careful instructions and accompanied by smoking cessation counselling. However, it is not felt to be effective when the prescription is given by a physician who does not provide information or counselling.

The nicotine patch has been shown to work well in situations were minimal instructions and no counselling are given.[26] The smoking cessation rates after intervention trials are as favourable, or sometimes more favourable, than those rates for the use of nicotine resin.[27] This certainly suggests that physicians should not be reticent about prescribing the patch in appropriate dosages. The recommended periods of time for which a person should use a particular dosage of patch should be considered minimums. Patients occasionally find that they wish to remain at a certain dosage of patch for a longer period of time, and there is no contra-indication to this. Abstinence from smoking for the first two weeks of patch use is a strong prediction of successful cessation, and one follow up visit for support during this period is recommended.[28]

It is known and accepted that approximately five percent of people who move from using tobacco to a nicotine replacement agent may become addicted to it.

This is felt to be tolerable because they are not continuing to receive the multiple other toxic chemicals associated with tobacco. The cost of nicotine replacement, unfortunately, is not less than that of an equivalent number of cigarettes currently in most Canadian jurisdictions, so cost is a significant deterrent to some women. Patients should be strongly encouraged to consider the use of the nicotine patch, particularly if they have tried "cold turkey" and have been unable to cope with acute withdrawal symptoms or strong urges. The investment is well worth it in terms of long time health benefits.

High dose patches (44 mg/d) appear to be safe for heavy smokers, although some may experience side effects. It is important to assess the cigarette smoking rate of patients and to prescribe the appropriate dose accordingly. There is much better relief of withdrawal symptoms and a higher likelihood of quitting when an attempt is made to replace nicotine as completely as possible.

In a study of an equal number of men and women, a person smoking 10 cigarettes per day was classified as a light smoker, and subjects smoking 40 cigarettes per day were classified as heavy smokers. In heavy smokers, the 44 mg patch replaced an estimated 99 percent of their usual nicotine level. It was suggested that those smoking between 21 and 40 cigarettes per day would need an intermediate dose of 33 or 35 mg/d for the relief of withdrawal symptoms.[29]

There is a current recommendation that smokers remove the patch during vigorous exercise. One case of myocardial infarction occurred in a patient who used a nicotine patch and smoked.[30] Adverse effects from nicotine patches do occur. Mild skin irritation is not uncommon, and combining smoking with patches can produce such symptoms of nicotine overdose and toxicity as nausea, vomiting, headache, and palpitations. Generally, the nicotine absorbed from transdermal patches results in a lower mean blood concentration of nicotine than that obtained from cigarettes, and studies suggest that patches are less likely to cause cardiovascular problems than the use of cigarettes.[31]

MENSTRUAL CYCLE TIMING OF CESSATION

It is helpful to recommend that ovulating women plan to quit on the third or fourth day of a menstrual period so that they are able to cope with acute withdrawal symptoms while experiencing minimal magnification due to premenstrual hormone changes.

WOMEN AND SOCIAL SUPPORT FOR CESSATION

The importance of women's relationships with other people[32,33] and their style of socialization should be considered in smoking cessation interventions. A **supportive** spouse or male partner can be influential in helping women to lose weight or to quit smoking but often is not available. Many men do not understand or value the way that women communicate and their interpersonal needs. Recent work in the area of smoking cessation[34,35] and in the popular press with such books as "Men are from Mars, Women are from Venus"[36] suggests that women need to be encouraged to seek support from other women, whether formally or informally. Community support groups for women who are disadvantaged and who smoke are being evaluated and may be quite helpful.

STAGES OF LIFE

Different periods in a woman's life are also deserving of particular attention in smoking cessation interventions. **Preteens** are the people who acquire the smoking habit. A recent Canadian smoking intervention study of grade six students showed that intervention had little effect with females.[37] Many physicians have the opportunity to see these young girls for a variety of minor health care problems. This is an important time to clarify with them the health risks of smoking, and the ease with which women can become addicted, particularly with the new "light" cigarettes. Very young girls may be willing to make a health contract "never to smoke."

As part of her development, an adolescent may declare her independence from adults close to her (this can include her previous physician) by starting to smoke.[38] The influence of peers may be very strong. Appearance is the top concern of teenage girls from grade seven through all but the last grade of high school.[39] Young women also must learn to cope with the ups and downs of their fluctuating hormones, and mood may play a major role, affecting their image of themselves as capable people with appropriate body size. Too many teenage girls want to be skinny. They see cigarette smoking as one effective way to achieve this.[5] In addition, there are studies which suggest strongly that depression in this age group is either a predisposing or concomitant condition to the acquisition of a regular smoking habit.[40]

CHILD BEARING AND CHILD REARING YEARS

Women's child bearing and child rearing years receive much attention from a society which is concerned about the health risks of tobacco use both for the mother and for her children. Concerns that smoking behaviour is not routinely assessed by health professionals in pregnancy have been expressed for a number of years.[41] There is always the hope that smoking cessation initiated during pregnancy can continue on into the post-partum period. Critical appraisal of the current literature[42] supports inclusion of smoking cessation interventions in the care of pregnant women who smoke, and finds that it is cost effective. Recommended manoeuvres include advice, multi-component programmes, and/or behavioural modification strategies.[43] Fortunately, many women do not wish to smoke during pregnancy because they develop a definite distaste for cigarettes quite early in the first trimester. Cessation is relatively easy for them. There are also many women who feel strongly motivated and stop smoking spontaneously during pregnancy.

Various media and public campaigns have been mounted to pressure women not to use various substances including tobacco and alcohol. It is important, however, for health professionals to be very conscious of the fact that this is a situation in which the woman may be unfairly receiving attention which in fact "blames the victim." It is estimated that 25 to 40 percent of women do quit smoking for some period during their pregnancy and those smokers who remain are frequently women who are experiencing considerable situational stress and need to be offered comprehensive and understanding support. Such women often use cigarettes to cope with distress resulting from increased physical or psychological abuse from partners, increased difficulty in coping with the socio-economic problems due to the fatigue of pregnancy, the burden of caring for other young children, abandonment by partners, and other major problems. Just intervening at the level of smoking cessation alone with such women would be superficial and insensitive.

Unfortunately, most pharmalogical agents are not approved for use during pregnancy. There is a concern that the use of nicotine replacement may result in decreased blood flow to the fetus because of vasoconstriction. One author suggests that the use of nicotine replacement may still represent a lesser risk than the use of tobacco which also can elevate fetal carboxyhaemoglobin and catecholamine levels and can provide exposure to a number of other toxins, as well as fluctuating levels of nicotine.[44]

Clonidine also crosses the placenta and can be found in breast milk.[9] It is not recommended for smoking cessation in pregnancy because of its physiological effects. However, the new generation selective seratonin reuptake inhibitor anti-depressants are not absolutely contra-indicated in pregnancy.[45] In cases of clinical depression and heavy smoking, the benefits may outweigh the risk of using these drugs.

Research is expected soon to appraise critically the use of antidepressants in the face of the very real known risks to the fetus of maternal smoking. The ethical dilemmas and potential legal problems that researchers and pharmaceutical suppliers face unfortunately often discourage research in the area of pharmacological agents to support smoking cessation in pregnancy.

Women who are the **most likely to quit smoking** spontaneously during pregnancy are those who: have been lighter smokers prior to pregnancy; are less likely to have another smoker in the household; indicate a strong belief that smoking is harmful to the fetus; and enter prenatal care earlier. By comparison, those women who are **less likely to quit smoking** are: multi-gravidas; those unconvinced that maternal smoking harms the fetus; of a lower socio-economic class; younger; heavier smokers; and less well educated. They may benefit most from broad social service based interventions which can address a wider range of their problems as well as encourage smoking cessation. There is no conclusive research evidence to support such comprehensive prevention programmes.[1]

POST-PARTUM

The post-partum period is a time when 60 percent of women resume their pre-pregnancy smoking habits.[46] The often unanticipated effects of caring for a helpless demanding infant as well as recovering from the experience of giving birth can overwhelm a new mother if she has very little adult support at home. Ideally, health professionals could use the pregnancy visits to provide prospective health education and information, as well as planning behaviour modifications to cope with these stresses. Changes in mood are particularly prominent

in the post-partum period whether in the form of dysphoria, the blues or clinical post-partum depression, so the temptation to turn to nicotine may be quite great. Such depression should be treated. Many women feel stressed by sleep deprivation, the presence of other young children under the age of three who require care, and the large responsibilities of caring for an infant, for herself, and returning to her expected domestic chores and then to her previous job.

Physiological contributors to post-partum distress including iron deficiency anaemia, thyroid disorder, and low grade infections should always be ruled out. There may be a point at which the physician would recommend that the situation is such that a difficult or demanding infant should be weaned and the mother started on nicotine replacement therapy if the risks outweigh the benefits of breastfeeding. One such situation would be where a child is experiencing respiratory problems that could be associated with the mother's smoking. Obviously, such decisions need to be discussed carefully with the parents in light of the current emphasis on continuing breastfeeding and its definite economic benefits.

There is a strong Public Health emphasis on programmes within the early school years to persuade young children not to start smoking.[6] One of the expectations of these programmes is that the children will come home from school and request that their parents quit smoking immediately because of the risk of illness and death. This can be quite dramatic and very effective. Health care professionals who work with the parents of newborn infants and young children have an excellent opportunity to warn the parents that these children are at risk, and to use this motivation to consider cessation based on the parental concern for their children and their own children's concern as an aid in encouraging them to consider quitting.

Health care professionals need to be extremely sensitive to the situation of young mothers who may be spending much of their time in the home with young children feeling isolated and drained by their child care and domestic responsibilities. These women often describe a cigarette as their friend. They may use the opportunity to take a break and have a cigarette as a socially acceptable reason to leave the vicinity of their children. They may go outside or into another room and have a few minutes to themselves while they smoke. This may be one of the few remaining links they have to a previously independent adult life. In addition, young children of smokers are often trained at an early age to avoid approaching an adult with a cigarette because of the risk of receiving a personal burn or causing an accident. Because mothers generally feel a need to cope with fatigue, avoid irritability, and maintain their concentration in the home situation, they may be strongly motivated to continue smoking. Professionals should provide understanding support and information about community resources where mothers can find peer support, programmes that are accessible to those with small children, and also consider the use of pharmacological agents.

MID-LIFE

Women show a worrisome pattern of failing to quit smoking as they age.[47] Approximately 30 percent of Canadian women are smokers. Many of them are now in their mid-thirties or older. Because of the dose related effects of tobacco, these women may already be showing early signs and symptoms of physical problems. At this time, most individuals are past the stage of denial and are ready to heed health education. It is an excellent time to begin to provide more information about various interventions and pharmacological supports available for smoking cessation as health advantages can still be gained.[48,49] A smoker who has quit for six months can go on to use appropriate oral contraceptives if indicated. The risk of clinical depression, however, begins to rise in middle-age and should always be screened for prior to initiating smoking cessation interventions.[50] Unfortunately, many of the women in this age group are socioeconically disadvantaged, and once again a broader based intervention may be appropriate to deal with some of the underlying factors influencing continued smoking.

OLDER WOMEN

The socio-economic disadvantages of older women become greater as their ability to work and their risk of widowhood or abandonment increase. These are the same women, unfortunately, who are likely to be smokers.[51] Generally, women are at higher risk for strokes than men and are less likely to suffer dramatic sudden death due to cardiac disease. Individuals who become victims of cardiovascular disease are often more likely to quit smoking. Older couples who quit at the same time have the best chance of success, and if both partners are

beginning to experience tobacco related disability, it may be an excellent time for physicians to provide this information.

CONCLUSION

As can be seen, when compared to men, smoking is different in women. It is initiated for different reasons, maintained for different reasons, and particularly difficult to quit for different reasons.

The psychology of women, their particular needs for social support within important relationships, and their tendency to consider their own health as a lesser priority then that of their children and immediate family, mean that smoking cessation in women is different. While demonstrating some of the basic general principles in patterns similar to those of men, there are many fine points of adjustment which knowledgeable physicians can use to be particularly supportive to women in becoming smoke free.

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