

Smoking Cessation and the implications for drug treatments and symptoms in those with mental health problems

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Introduction

The relationship between cigarette smoking and fatal disease is well documented, and in the U.K over 100,000 people annually die from smoking related disease. In response to this there is a drive by the U.K government to reduce smoking rates and promote smoke free environments at work and in places of leisure. One group in which smoking is particularly prevalent is amongst individuals with mental health problems, with those with diagnosis of a psychotic disorder being most likely to smoke. People in this group are also most likely to develop smoking related fatal disease than the general population. The benefits of individuals within this groups successfully stopping smoking are therefore obvious, although it is likely that high levels of support will be needed to achieve this. The department of health has outlined the requirement that by 2006 mental health trusts within the NHS should observe the Smoke free Workplace Policy, in order to encourage smokers to quit and reduce the harmful effects of environmental tobacco smoke.

Aims

The aim of this review is to investigate the effect of smoking cessation on the drug regimens of those with mental health regimens and their symptoms.

Methods

A structured literature review was performed in September 2005 to identify relevant papers. The search strategy involved combinations of the key words 'mental health', 'smoking cessation', 'antipsychotics', 'antidepressants'. The reference lists of reports of interest were examined to identify further papers to include in the review.

Results

13 empirical studies (Table 1), 4 review papers (Table 2) and 2 case studies (Table 3) have been included in this review.

Smoking cessation and Schizophrenia/Schizoaffective disorder

Smoking rates have been shown to be higher amongst those with schizophrenia, nicotine increases the mesolimbocortical dopaminergic activity in the nucleus accumbens and the prefrontal cortex and this stimulation of dopamine supports the view that high use of nicotine is a form of self-medication amongst schizophrenics to reduce negative symptoms¹⁷. Studies to identify the effect on psychotic symptoms of smoking cessation in those with schizophrenia conclude that positive and negative symptoms are not exacerbated by smoking cessation^{7,12,17}, however achieving prolonged abstinence does appear to be more difficult for this group of patients¹⁶ with smoking cessation failure more likely in those with greater neurological deficits⁸. As patients with schizophrenia may experience more problems when they attempt to give up smoking, specialist smoking cessation programs may need to be developed for this group of patients¹⁷.

Smoking cessation and antipsychotics drugs

Several of the atypical antipsychotics (clozapine, risperidone and olanzapine) may increase cortical dopamine release in a manner similar to nicotine. These may therefore be useful in reducing nicotine dependence among patients with schizophrenia¹⁷. The results of a study by George et al³ involving 45 patients with schizophrenia or schizoaffective disorder found that atypical agents may be more superior to typical agents in combination with nicotine transdermal patch for smoking cessation in this group of patients.

Case studies available in the literature show that toxicity from atypical agents can arise following smoking cessation^{18,19}, and an American study of in-patients on clozapine before and after the implementation of a hospital wide non-smoking policy found that clozapine levels rose in these patients on smoking cessation⁴. It is proposed that polycyclic hydrocarbons in cigarette smoke induce liver enzymes (in particular cytochrome P450-1A2) to increase the metabolism of psychotropic medications. Patients who smoke and who are treated with CYP-1A2 substrate antipsychotics should therefore be monitored regularly if they decide to reduce or increase their level of smoking to avoid potential toxicity¹⁹.

Smoking cessation and depression

The development of depressive episodes following smoking cessation is well documented and patients with prior history of major depression are more likely to experience depression^{1,11,13,14,15} and the risk may remain high for at least 6 months⁶. A study of 179 smokers with a history of a major depressive episode produced results, however, which did not fully concur with this view and found that some of the sample exhibited increased depressive symptoms and some decreased depressive symptoms following smoking cessation, though patients with increased symptoms were less likely to have achieved abstinence⁹. This was also found to be the case in Kinnunen et al's¹⁰ study involving 269 volunteers, it was concluded that depressive symptoms are an obstacles to successful smoking cessation, though depressed smokers using nicotine gum in this study reported fewer depressive symptoms 1 week after cessation.

Smoking cessation and antidepressants

As discussed depression is likely to diminish success rates in smoking cessation, though antidepressants have been used successfully in smoking cessation in patients with depression (bupropion, nortriptyline) to increase abstinence rates¹⁵. A study by Evins et al⁵ investigated the usefulness of bupropion to aid smoking cessation in patients with schizophrenia and found it to be modestly effective in this group of patients without worsening clinical symptoms.

Conclusion

- Nicotine may alleviate negative symptoms in schizophrenia and therefore patients may use smoking as a self medication tool, as a result should a non-smoking policy be implemented in their place of residence or treatment facility suitable alternatives should be offered to patients
- Although smoking cessation is likely to be more challenging for patients with schizophrenia it has been shown to be possible without worsening or exacerbation of their symptoms, but specialist support will be necessary to achieve this
- Atypical antipsychotics may aid smoking cessation and prolonged abstinence in patients with schizophrenia
- Cigarette smoking induces the enzymes that metabolise some psychotropic drugs and therefore a reduction in smoking can lead to toxicity
- Those with current or past depressive symptoms may find smoking cessation more challenging and those with a past history of depression are more likely to suffer a depressive episode after smoking cessation. Continued specialist support is therefore warranted for this group of patients.
- The antidepressant Bupropion has been shown to be effective in aiding smoking cessation in those with schizophrenia and depression