Synthetic cannabis linked to respiratory depression

The problem

Synthetic cannabis contains a large number of synthetic cannabinoid chemicals which have not been formally identified.

In addition, attempts to ban the drugs have been largely thwarted by manufacturers who change the chemical components to get around laws. Despite being marketed as herbal highs and being relatively new on the drug scene, the effects of synthetic cannabis are far from benign.

Commonly reported side effects include: acute onset nausea, anxiety, agitation, paranoid ideation, hallucinations and exacerbation of psychosis or psychotic relapse.

What was the goal?

This 2012 report from the Department of Psychiatry, University of Medicine and Dentistry of New Jersey, was the first to describe two cases of use of synthetic cannabis leading to respiratory depression and hospital admission for intubation.

"...healthcare professionals need to be aware of its potentially greater toxicity ocompared to natural cannibis..."

What did they find out?

Case one describes a 19 year old Caucasian male who presented with "altered mental states" subsequent to using synthetic cannabis. Tests in the emergency room revealed a low resting respiratory rate of 7. He was intubated and discharged when he returned to his usual state of health. He had been smoking Spice for six months prior to admission and had been abusing alcohol for three years.

In case two a 15 year old male presented to the ED with loss of consciousness. He had been abusing non synthetic cannabis for nine months. On the day of admission he had consumed large quantities of alcohol and synthetic cannabis. His resting respiratory rate was 8. He fully recovered after four days of treatment.

What does this mean for health care professionals?

Synthetic cannabis is a relatively new drug of abuse and health care professionals need to be aware of its potentially greater toxicity compared with natural cannabis. Although the drug is sold in health shops, users such as these two case studies are likely to be well entrenched dented drug scene and abusing other drugs and alcohol.

Citation: Synthetic Cannabis and Respiratory Despression. Jinwala FN; Gupta M (MD) Journal of Child and Adolesecent Psychopharmacology. Vol 22(6) 2012.

Use of emerging psychoactives such as mephedrone on the rise

The Problem

As well as synthetic cannabis the past decade has seen the development of an array of emerging psychoactive substances including stimulants such as mephedrone and psychedelics such as DMT which have been implicate din high profile deaths of young people. As such drugs are relatively new to Australia and appear to be use sporadically there is a lack of information about who is using them and the likelihood of them becoming a drug of abuse.

How did they investigate?

The authors looked at a sample of 693 regular ecstasy users who are part of the long running study, the Ecstasy and Related Drugs Reporting System.

What did they find out?

More than a quarter of regular ecstasy users had used an emerging psychoactive substance in the past six months, most commonly a stimulant such as mephedrone. Psychedelic stimulants were less commonly used. Significantly users of mephedrone were similar to ecstasy users while users of psychedelic stimulants were more entrenched in their drug use – had initiated ecstasy earlier, took ecstasy more frequently and took a wider array of drugs.

What does this mean for health care professionals?

The authors suggest that use of psychedelic stimulants is largely restricted to a sub group of non- injecting poly drug users. The similarity of ecstasy users and users of the new classes of stimulants such as mephedrone, combined with declining purity of ecstasy, suggested that these new stimulants may become more commonly used by Australian drug users in the future. These drugs are likely to have an even greater public health impact than ecstasy and require monitoring.

Emerging psychoactive substance use among regular ecstasy users in Australia. Raimondo Bruno et al. Drug and Alcohol Dependence 124 (2012). 19-25

"...the past decade has seen the development of an array of emerging psychoactive substances..."

Biomarker may predict patients who respond better to CBT and which respond better to pharmacotherapy

The problem

Major depressive disorder (MDD) is a highly prevalent, disabling and costly illness. First line treatment for MDD is currently antidepressant medication or evidence based psychotherapy. Unfortunately only 40% of patients treated for MDD achieve remission after the initial treatment and there is no reliable way for clinicians to predict who would respond better to medication and who to psychotherapy.

What was the goal?

The authors led by researchers from Emory University in Atlanta Georgia, USA set out to identify a treatment specific neurological biomarker than would predict individual response to either mediation or psychotherapy.

How did they investigate?

The study design was a 12 week randomised controlled trial (RCT). Positron emission tomography (PET) was used to measure brain glucose metabolism prior to randomisation to either medication – escitalopram oxalate - or cognitive behaviour therapy for 12 weeks. 82 patients, male and female, aged 18-60, commenced the study and 38 had clear outcomes and PET scans allowing their results to be used in the analysis. The main outcome measure was remission at 10- 12 weeks as defined by the 17pt Hamilton Depression Rating Scale.

What does it mean for health care professionals?

The results suggest that patients who respond to CBT have a distinct neurophysiology that differs from patients who require escitalopram. If confirmed in future studies this could improve clinical practice in particular the practice of adding or substituting an additional pharmacotherapy in response to treatment failure, when the patient may benefit from being switched to CBT. The authors acknowledge that limitations include lack of a placebo in the study design and also inability in the study design to identify patients who do not respond to either of the first lien treatments, either alone or in combination.

Citation: Toward a neuroimaging treatment selection biomarker for major depressive disorder. McGrath C L; Kelley M E, Holtzheimer P E; Dunlop B D, Craighead E W; Franco A R , Craddock C, Mayberg H S,. JAMA Psychiatry. August 2013, Vol 70, No. 8

> "...patients who respond to CBT have a distinct neurophysiology that differs from patients who require escitalopram..."