Oral Abstracts

2A-01

USE OF E-CIGARETTES AND ELECTRONIC NICOTINE DELIVERY DEVICES TO VAPE RECREATIONAL DRUGS AND NEW PSYCHOACTIVE SUBSTANCES

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Background: There is increasing use of electronic nicotine delivery devices (ENDD) such as electronic cigarettes for the inhalation of nicotine to reduce smoking of cigarettes and tobacco itself. In addition there are "vapouriser" devices which vapourise compounds into a large self-contained bag, from which an individual then inhales. Over the last few years there has been increasing interest and concern as to whether both electronic nicotine delivery devices and vapourisers can be used for the delivery of both classical established recreational drugs as well as novel psychoactive substances (NPS). In this lecture, we will review the limited available evidence that these devices are being used for the delivery of recreational drugs and NPS.

Cannabis use by ENDD/vapourisers: In the 2015 US Monitoring the Future project, 13.4% of the approximately 44,900 respondents had used these devices, with only 6-7% reporting that they had inhaled marijuana / hashish oil by this route[1]. In a survey of 2,910 cannabis users recruited through Facebook, 61% reported having previous vaping of cannabis; the mean age of first vaping (24 ± 12 years) was higher than the mean age of first cannabis use (16 ± 4 years)[2]. Overall, the majority of individuals used cannabis by smoking, with only 0.2% (7 individuals) reporting that they only vaped cannabis. There appears to be an association of vaping cannabis and the legal status of cannabis. In an online survey of 2,838 cannabis users, those who lived in US states where cannabis use was legalized had higher rates of vaping use (69%) compared to those living in states where cannabis use was not legalized (54%) [3].
There is no reported data on the potential harms associated with the vaping of cannabis, although there does appear to be some potential benefits from using cannabis by this route. Surveys of vapouriser cannabis users report the main reasons for use by vapourising rather than smoking include: i) perceived health benefits; ii) better taste; iii) no smoke / smell / more discreet; and iv) more effect for same amount of marijuana [4].Vaping of cannabis may be associated with less effects on lung function than seen with the traditional smoking of cannabis (this is known as "mulling" where the cannabis is mixed with tobacco prior to smoking). In a survey of almost 6,731 cannabis users, 66% of those who used by smoking (n=6,731 users) reported respiratory symptoms compared to 56% of those who used by vapourising only (n=152)[5]. A trial of 22 regular cannabis users studied before and 30 days after switching from regular cannabis use to use by vapourising only, demonstrated improvements in 'respiratory distress', FEV1 and FVC[6].

Other recreational drug and NPS use by ENDD/vapourisers: There is no population or sub-population data on ENDD / vapourisers being used to take other recreational drugs and/or NPS, with only limited anecdotal evidence from online user discussion forums and a small number of case reports. In May 2016, there were a total of 84 user posts on the Internet discussion forum Erowid related to the use of ENDD/vapourisers to take recreational drugs/NPS. Of the non-cannabis reports (48 user reports), 21 related to a range of different synthetic cannabinoid receptor agonists (SCRAs) and 8 related to a range tryptamines. There were some reports related to cathinones, phenylethylamines and other NPS. To date there are two case reports of acute toxicity related to vaping of acetylfentanyl [Rogers JS 2016] an SCRA [McCloskey K 2016].

Conclusions: There appears to be increasing evidence from population/subpopulation surveys that cannabis is being used through ENDD/vapourisers. There appear to be some benefits of this route of drug administration, although these need to be offset against the risks of increased/more frequent inhalation by this route. There is limited evidence currently of other recreational drugs and/or NPS being used by "vaping". It should be possible to predict which drugs may be used by this route based on their heat stability.

References:

1. Johnston LD et al. Monitoring the future national survey results on drug use 1975-2015. 2015 Overview: The key findings on adolescent drug use. 2016 Available from: www.monitoringthefuture.org/pubs/monographs/mtf-overview2015.pdf
2. Lee DC et al. Online survey characterizing vaporizer use among cannabis users. Drug Alcohol Depend. 2016;159:227-233
3. Borodovsky et al. Smoking, vaping, eating: Is legalization impacting the way people use cannabis? Int J Drug Policy. 2016; In press
4. Malouff JM et al. Experiences of marijuana-vaporizzeruers. Subs Abuse. 2014;35:127-128
5. Earleywine M, Barnwell SS. Decreased respiratory symptoms in cannabis users who vaporize. Harm Reduct J. 2007;4:11.
6. Van Dam NT, Earleywine M. Pulmonary function in cannabis users: Support for a clinical trial of the vaporizer. Int J Drug Policy.2010; 21:511-513.
7. Rogers JS et al. Acetylfentanyl: An Emerging Drug of Abuse. J Emerg Med. 2016;50:433-436.
8. McCloskey K. E-cigarettes and synthetic cannabinoids: a new trend [abstract]. ClinToxicol 2016;54:344-359

Learning Objectives:

1: Describe the prevalence of cannabis use by electronic nicotine delivery devices (ENDD) and vaporizers.
2: Understand the potential benefits of vaping cannabis over traditional smoking of cannabis
3: Describe the pattern of other recreational drugs and novel psychoactive substances that can be used by ENDD/vaporizers.