The health threat of drugs of abuse adulteration by new psychoactive substances

A. Minutillo, I. Palmi, L. Mastrobattista

Centro Nazionale Dipendenze e Doping, Istituto Superiore di Sanità, Roma, Italy

Dear Editor,

The practice of drugs of abuse adulteration has always existed (1). Powdery drugs such as cocaine and heroin are predominantly adulterated to obtain more doses with low concentration of active drug to enter the ranges of therapeutic non-toxic effects and to increase the drug dealer profits, although a range of modifications of the drug effects may also be observed (2).

In the past century, the problem of the adulteration of traditional drugs was very well known and defined. The typical adulterants of heroin were caffeine, paracetamol, methorphan and those of cocaine were caffeine, levamisole, lidocaine and benzocaine (2). The above reported substances were usually added to mimic or antagonize the main drug effects whereas inactive diluents such as glucose, sodium carbonate, starch and talc were supplemented to increase the total amount of seized dose (3).

In the 21th century, the phenomenon of adulteration has undergone a radical change with the advent of new psychoactive substances (NPS), becoming an even more dangerous than before. Indeed, on one hand new psychoactive substances are themselves subject to adulteration, creating situations of serious toxicity.

A current example is that of GHB and its prodrug GBL (4, 5) which are chemsex drugs used in low concentration as disinhibiting drugs or at higher doses as sedative substances in rave parties followed by sexual intercourses.

Recently, an adulteration with sildenafil, a sexual enhancer, was disclosed in two individuals, who consumed the drugs adulterated with the intention to enhance expected sexual effects, but unexpectedly suffered a critical intoxication (6).

In case of other chemsex drugs, such as cocaine, methamphetamine and 3.4 methylenedioxymethamphetamine (MDMA), multi drug cocktails with NPS have been evidenced by nail analysis of party goers leading to the simultaneous consumption of three to eight different substances (7) with consequent high risks of acute intoxications and fatalities (8, 9).

On the other hand, new psychoactive substances have themselves become adulterants of classical drugs due to their low-cost production in clandestine home laboratories, low legal restrictions for those substances not yet controlled and in some cases longer or more potent psychotropic effects.

Indeed, NPS have been recently found as cutting agents in illicit drugs seized by police in Queensland, Australia (10). Similarly, the emergent issue of synthetic cathinone adulteration of more common illegal drugs, such as ecstasy (3,4-methylenedioxymethamphetamine) has emerged in US with a non-negligible impact on public health (11).

Nevertheless, the most serious present health threat for drug users, especially chronic heroin addicts, is that of adulteration of heroin with fentanyl and its analogues (12).

Fentanyl and its analogues are synthetic opioids with potency between one or two orders of magnitude higher than that of heroin (13).

They displayed the same action of opiates on opioids receptors, but with a much higher affinity meaning that they are active and toxic at the same time at the level of micrograms, suggesting that one little granule can transform an effective substance in a toxic mortal one (14).

Abstract

The practice of drug of abuse adulteration is changing. Currently, the risk of new adulteration practices involves New Psychoactive Substances (NPS), which can also be used as adulterants. In particular, the phenomenon of adulteration concerns fentanyl and its analogs, substances that can be toxic even if taken in very small quantities. The adulteration that involves NPS is creating a serious threat to the health of drug users, not only because of the pharmacological action but because of the increased toxicity of these new cutting agents. Clin Ter 2019; 170(6):e425-426. doi:10.7417/CT.2019.2170

Key words: new psychoactive substances, adulteration, drug of abuse
They are significantly cheaper than heroin, produced in illicit “home laboratories”, as above reported for other NPS, and provide an action on central nervous system faster and more boosting than heroin itself.

An epidemics of fatalities by fentanyl and its licit analogues, which are more than fifty at moment, first struck the United States and then Europe (15).

In conclusion, we warn on the risk on new adulteration practices involving NPS with particular attention to fentanyl illicit derivatives since currently, adulteration of NPS or by NPS is creating a serious health threat among drug users, not only because of the pharmacological action but because of higher toxicity of these new cutting agents.

References