Ocfentanil: a novel fentanyl derivative detected as an adulterant of Heroin

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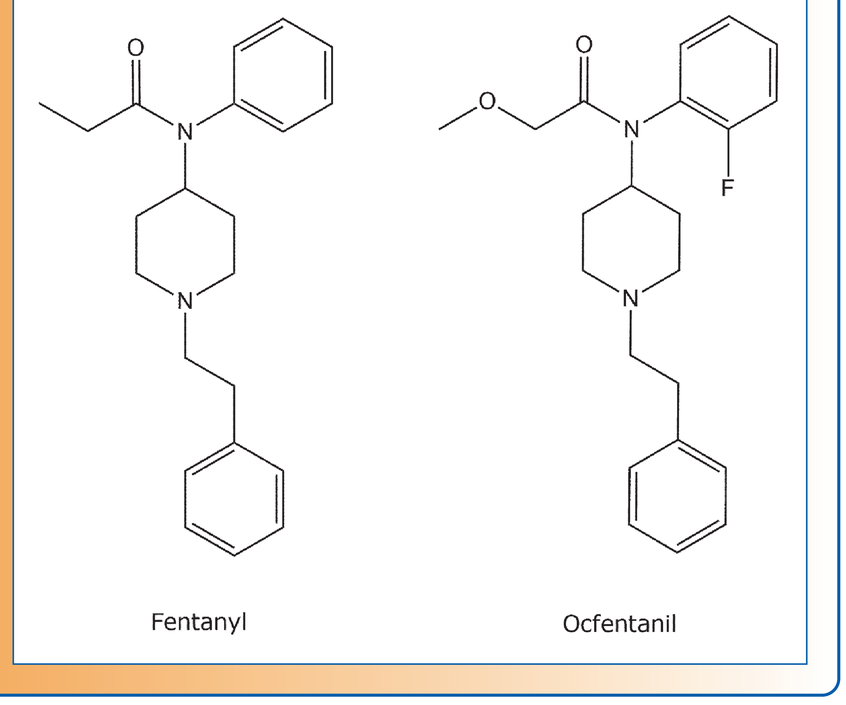
Introduction

The popularization of anonymous markets such as Silk Road is challenging current drug policy and may provide a new context for old issues, such as adulteration of heroin with fentanyl derivatives. Ocfentanil is one of those derivatives: first described in a patent from 1986[1], it was evaluated in humans in 1989 but never reached the market. Effects of 3mcg/kg of ocfentanil were considered similar to those of 5mcg/kg of fentanyl. It exhibited analgesia and respiratory depression in a dose-related manner, with both effects peaking at 6 minutes. Analgesia largely disappeared after one hour, while respiratory depression tended to last longer[2].

The aims of this work are to report the presence of ocfentanil, a novel, potent, non-controlled fentanyl analog, in samples sold as heroin in the deep web, and to summarize the effects reported by users.



Methods

Between 2015 and 2016, four samples bought as heroin in the deep web were sent to Energy Control for analysis. Energy Control is a Spanish harm reduction NGO that offers anonymous drug checking with the purpose of adapting counseling to the specific substances present in the drug and monitor the drug market. Identification was performed by GC/MS and LC/MS/MS. We contacted the submitters of the samples and performed an internet search to retrieve additional information.

Results

One sample contained ocfentanil, caffeine and heroin. Three samples contained the aforementioned substances plus paracetamol. Two out of the four contacted users reported distinct short acting, opioid-like effects. No fora discussion could be found about the effects of ocfentanil, neither web pages nor individuals advertising the substance.

Figure 1: Results of GC/MS. Upper panel shows total ion chromatogram of sample #2 and lower panel shows mass spectra of ocfentanil.

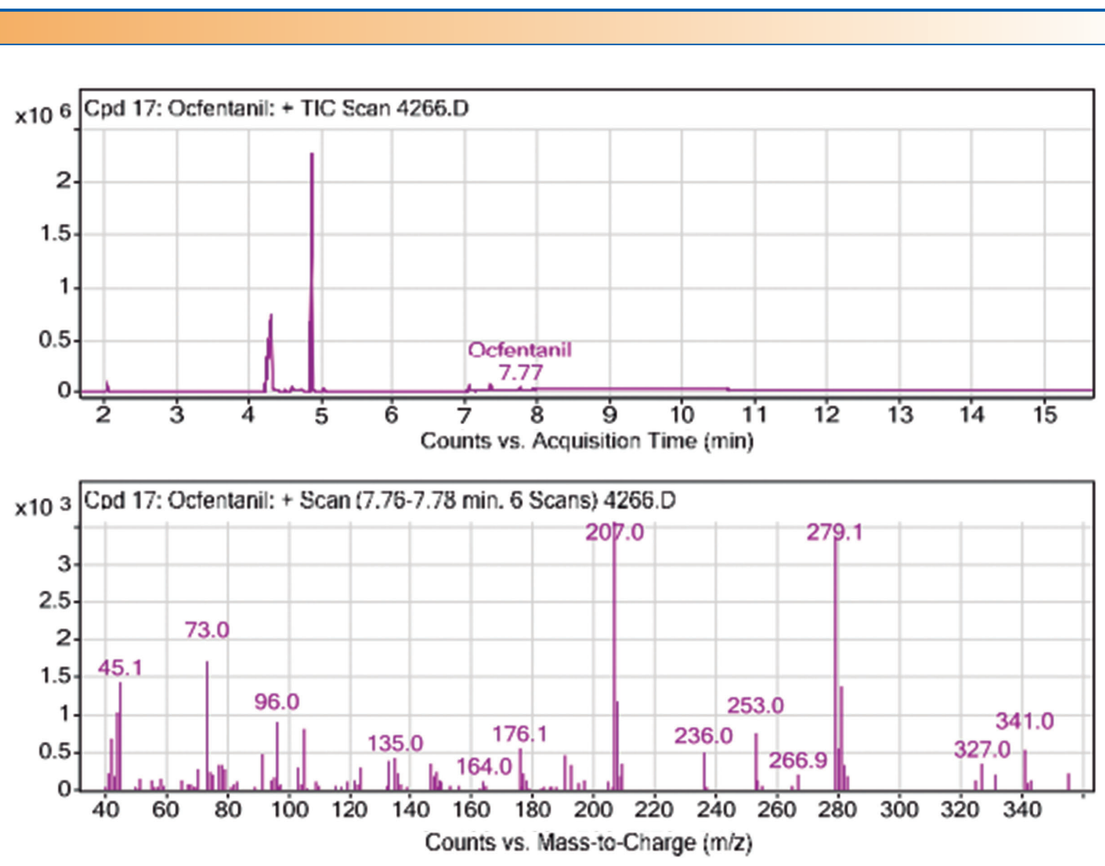
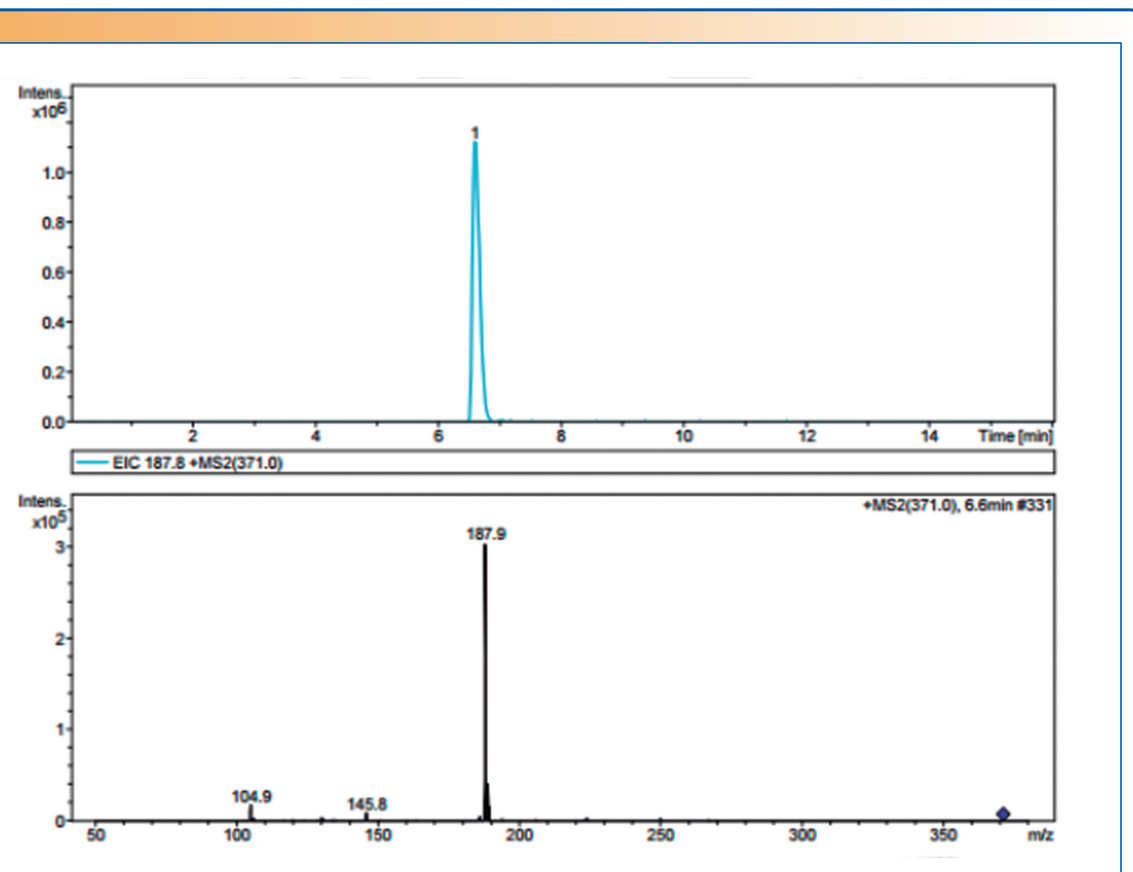


Figure 2: Results of ocfentanil using LC/MS/MS with an ion trap in MRM mode



Users' report on the effects of samples #1 and #2.

"It's a hard effect, like very very strong heroin (something around 40%), coming very quick (3min after snorting), short (maybe 15-20 min of real buzz), and 1 big hour of small effect."

"The effect is opiate of course, but not exactly like heroin: more "stimulant", less cool and euphoric. It seems that many people don't see the difference, for example a friend of mine didn't trust me, he was sure that it was great heroin. This point is important: only few people have tried real pure heroin so they can easily imagine that there is a difference (I tried medical heroin and I can say it: the effects are exactly the same as street heroin, just less strong!)"

"For really addicted people there is a difference: the effect is shorter so they are sooner in withdrawal: one person said what alerted him was that when he took this heroin, he was in withdrawal every morning when he woke up."

Conclusion

We report the presence of a new substance detected in the deep web as an adulterant of heroin during 2015 and 2016, which has not been sold as such as far as we are aware.
A British harm reduction organization, WEDINOS, also reported the presence of ocfentanil, paracetamol and caffeine in samples submitted for analysis between March and July 2015, which is concordant with our findings. Users reported snorting and/or smoking the substance, experiencing typical opiate-like effects such as euphoria, relaxation and nausea. Other reported effects (chest pain, psychosis and agitation) were not described in published clinical trials and may indicate a high potential for toxicity, although this information should be taken with caution because other substances may have been involved. Moreover, one fatality has been associated with this substance[3]. These findings contrasts with the good safety profile exhibited in clinical trials.

We conclude that ocfentanil is a substance with short acting opioid-like effects, roughly the same potency as fentanyl, and that can be injected, snorted, or smoked. Users reported a product less euphoric than heroin, which is in concordance with other studies that report that the fentanyl "high" does not meet users' expectations when compared with other opioids[4]. Several questions remain: is the extension of this phenomenon to the deep web a sign that the fentanyls problem is growing? What was the drive that led to using ocfentanil as an adulterant, instead of other already marketed fentanyl derivatives such as butyrfentanyl or acetylfentanyl? As ocfentanil is not a world-wide controlled substance, why was it not sold as a legal high in the first place?

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