

Letter to the Editor

The issue of psychotropic drug monitoring in sexual assault victims

Dear Editor,

Drug-facilitated sexual assault (DFSA) is a sexual act in which the victim is unable to give or deny consent due to unconsciousness caused by intoxication with alcohol and/or psychoactive drugs that have been self-administered (opportunistic DFSA) or surreptitiously administered by the offender (predatory DFSA)¹.

The characteristics of drugs used in DFSA include: being tasteless and odourless and readily soluble in beverages of any type; ability to cause sedation and/or anterograde amnesia; rapidly absorbable after oral administration, and with a most possible rapid clearance from the body (e.g. within 24 h)¹.

In DFSA, the victim is unconscious, unable to reject the abuser and unable to clearly remember the circumstances surrounding the intercourse. The consequence is the delay in requiring and carrying out toxicological analysis on the biological matrices of the victim or even the reluctance of the victim to disclose the crime. Moreover, since the so-called "date rape drugs" are often consumed with ethanol and show similar toxicodynamic effects, the diagnosis can be wrongly considered as classical ethanol intoxication².

As before mentioned, the drug that is most used in DFSA is alcohol, but in this case the victim is aware that he/she is taking it³. What it cannot be known is that alcohol can be combined with psychotropic substances and this option represents the greatest risk factor for DFSA.

However, another important and less risky option is the hidden addition of psychotropic drugs to soft drinks or even to water.

In many cases, the increasing use of psychotropic substances derives from the fact that they are not recognizable since, as above reported, tasteless, odourless and easily soluble in drinks or food. Several are not only the benzodiazepines but also the non-benzodiazepine "Z drugs" (e.g. zopiclone, zolpidem, zaleplon), which are all hypnotic sleep inducers, leaving the eventual victim defenceless⁴. Both types of drugs can be bought under medical prescription, but can be also easily obtained through illicit markets. Whereas screening rapid test for benzodiazepines in urine and blood are eventually available at Emergency Department, this is not the case of "Z drugs" which require assays based on hyphenated techniques.

Another drug, which recently entered the list of DFSA substances, is ketamine, a dissociative anaesthetic that induces hypnosis with psychotomimetic effects at low concentrations, followed by increasing sedation and unconsciousness at higher doses⁵.

In any case, the drug most used in sexual assaults remains γ -hydroxybutyric acid: GHB. The substance is both a precursor and metabolite of γ -aminobutyric acid (GABA) and behaves as inhibitory neurotransmitter in central nervous system⁶. The dual nature of endogenous neurotransmitter and exogenous pharmacologically active compound makes the proof of GHB eventual conscious or unconscious intake a difficult task⁷. The most crucial issue is that the compound presents a short window of detection both in blood and urine (around 5 h blood and less than 12 h urine) and that established cut-off values should be considered to distinguish endogenous levels from external administration⁸.

Apart from that, both in case of suspicious GHB facilitated sexual assault and of other psychotomimetic drugs, it is always necessary to make a toxicological analysis of victim biological

fluids as early as possible in conventional matrices. When it is not possible because the victim reminds the abuse after a long time passed from the crime, it is possible to use hair analysis⁹.

This is especially the case of GHB. Segmental hair analysis of the drugs is definitively helpful, since it has extensively demonstrated that this endogenous substance increases significantly in its concentration even if it is administered only once and in the hair segment corresponding to the moment of the suspected sexual assault.

Standardized protocols should be used, as previously indicated.

Furthermore, it is striking to report, if available, the approximate interval of time between the suspected accident and hair sampling excluding any eventual previous intake of GHB. Segmental hair analysis should be performed cutting hair into 10 mm segments and reporting an eventual increase in GHB concentration within the segment related to the moment of suspected assault.

Segmental hair analysis has to be performed together with the calculation of the ratio between the targeted segments and the others with the exclusion of the first one. Each subject has to be used as his/her own control.

Ratios of 1:3 or 1:10 GHB concentration between untargeted and targeted segment has been suggested to undoubtedly assess conscious or unconscious intake of exogenous compound^{10,11}.

Another ultimate consideration is the recent replacement of legally-controlled GHB with γ -butyrolactone (GBL), cheaper and easier to obtain due to several legal industrial applications. Hair analysis can be useful also in case of this replacement, since the prodrug can be analytically differentiated from GHB¹².

In conclusion, the objective assessment of unconscious administration of psychotropic drugs by drug testing in conventional and unconventional matrices remains an important issue to detect the use of psychotropic drugs in sexual assaults victims¹³⁻¹⁵.

In addition, it is imperative to develop awareness campaigns that encourage early responders to suspected DFSA (e.g. law enforcement agencies, medical staff, support agencies, etc), to collect detailed information about the potential victim and stimulate the permission to collect and analyse conventional and non-conventional matrices for the possible presence of drugs facilitating the sexual assault.

Conflict of interest

The authors declare no conflicts of interest.

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