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Investigating drug-facilitated sexual assault at a dedicated forensic centre in Cape Town, South Africa

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ABSTRACT

Background: Drug-facilitated sexual assault (DFSA) is a well-recognised public health concern. In South Africa however, epidemiological and toxicological data associated with suspected DFSA are not available. Toxicological screening is currently not routinely available in clinical forensic practice in the Western Cape, or elsewhere in South Africa.
Objectives: To preliminary investigate and characterize DFSA in a specific metropolitan setting in South Africa and to identify the drugs/xenobiotics associated with these reported DFSAs.
Methods: In total, 107 survivors of suspected DFSA who reported to Victoria Hospital Clinical Forensic Unit in Cape Town, between 1 October 2013 and 30 June 2016, were included. Blood, urine, and/or hair specimens from survivors were screened for drugs of abuse using a targeted LC-MS/MS method. Breath alcohol measurements were conducted using the Dräger Alcotest 6820 after July 2015. Patient, incident and examination history were recorded on standardized data sheets.
Results: Of the 107 cases investigated, most of the patients were female ($n = 104$, 97%), between the ages of 18–25 years ($n = 54$, 50%), and had reported to the Clinical Forensic Unit within 24 h (n = 78, 73%). Altogether, 30 patients (28%) reported a history of mental health issues, drugs and/or alcohol use, or prior sexual abuse. Most incidents took place in the late evening/early morning at the home of the assailant(s), a friend or of the patient ($n = 62$, 58%), and most assailants were known to the victim ($n = 66$, 62%). Specimens were positive for drugs and/or ethanol in 72 patients (67%), with drugs other than ethanol being detected in 60 patients (56%). Breath alcohol measurements were conducted in 58 cases during the prospective leg of the study with an average reading of 0.1 mg/L (range not detected—0.98 mg/L).
Conclusion: DFSA in this setting is mostly opportunistic, with ethanol suggested to be the most commonly involved drug, despite limitations in detection due to delays in reporting. Other common drugs observed were methamphetamine, methaqualone and diphenhydramine either alone or in combinations. The complexity and current inadequacy surrounding investigation of these cases is highlighted in this study as well as the necessity for greater investment into the development of infrastructure to support systematic toxicological analyses and services to assist in the investigation and understanding of these intricate cases. Training and empowerment of role players dealing with the investigation and management of DFSA is required, and subsequent public health education and policy development is essential.

1. Introduction

The investigation surrounding alleged sexual offences is complex and necessitates the multi-disciplinary input of medical, scientific, legal and law enforcement personnel. The objective and informed presentation of contextual evidence to the patient is essential in their processing and understanding. This evidence may also assist a judge or magistrate to come to an informed decision if the case goes to court.

This study was a probe into the toxicological findings and case characteristics of a cohort of reporting adult survivors of suspected drug-facilitated sexual assault/offence (DFSA), and aimed to provide preliminary insight into the drugs/xenobiotics associated with DFSA crimes in one South African setting.

2. Background

In South Africa, 'sexual offences' include, but are not limited to, sexual penetration and sexual violation without the individual's consent (voluntary or uncoerced agreement) [1]. This includes when a victim is rendered incapable of consenting due to the

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administration of pharmacologically incapacitating alcohol and/or drugs (medicinal and/or recreational) [2,3]. Although the South African National Guidelines for Rape, Sexual Assault and Other Related Sexual Crimes do provide for the collection and screening for drugs and or alcohol after an alleged sexual offence [4], toxicological screening is currently not routinely available in clinical forensic practice in the Western Cape, or elsewhere in South Africa.

Although covert or forceful administration of a drug does occur (known as proactive-DFSA) [3], many of these crimes are opportunistic in nature, and transpire following a victim's voluntary consumption of alcohol and/or medicinal or recreational drugs [5–7]. Differentiating these circumstances and distinguishing whether an individual was able to consent to the sexual act remains a challenge in investigation of these cases.

Despite the thorough international investigation into the nature and interpretation of clinical and toxicological data in suspected DFSA offences [8], there are currently no published or available DFSA statistics and data from South Africa.

3. Methods

3.1. Study setting

This study investigated suspected DFSA in adult (>18 years) sexual assault survivors who reported to Victoria Hospital Clinical Forensic Unit in Cape Town, South Africa, between 1 October 2013 and 30 June 2016. At this unit, survivors of alleged sexual offences from the larger Cape Town metropolitan area covering 22 police stations are attended to and medical, forensic and counselling assistance is offered. It is a dedicated, 24-h, Western Cape Government Department of Health facility, and is one of five such service providers in the larger Cape Town metropole (approximate population of 3.74 million). Survivors of sexual offences are attended to by medical doctors and qualified sexual assault nurse examiners (SANEs). The medical doctors serving the unit are general practitioners or medical officers, and all staff perform their duties under the supervision of a qualified forensic medicine specialist.

In most cases, a survivor will report to a police station first, in which case a detective from a dedicated Family Violence, Child Protection and Sexual Offences (FCS) Unit of the South African Police Service (SAPS) is contacted. The detective assists the survivor with opening a case and arranges medical examination and evidence collection, if applicable, at the Clinical Forensic Unit. Other cases present directly to the Forensic Unit unaccompanied by the police, and with no desire to lay criminal charges. The medical management at the Forensic Unit is guided by the presenting history and the needs and requirements of the survivor.

Current local protocol for the management of survivors of sexual offences include evidence collection (where applicable), provision of medical testing and treatment, follow-up services to have medical tests repeated, as well as counselling. While toxicological screening is currently not readily performed in these cases in South Africa, specimens such as blood and urine may however be collected at the discretion of the attending medical practitioner. The police would then need to specifically request their analysis at the National Health Forensic Chemistry Laboratories. There are currently only four such laboratories serving South Africa, and routine DFSA testing at these laboratories is not part of their mandate (primarily post-mortem and driving under the influence cases). This particular Clinical Forensic Unit has a provisional collaboration with the Division of Pharmacology, University of Cape Town, who upon request of the medical practitioner, assist with limited toxicological screening of samples.

3.2. Sample population

The first component of the study involved a retrospective review of all folders of patients (≥18 year old), who reported an alleged sexual assault and were examined at the Clinical Forensic Unit between 1 October 2013 and 30 June 2015. Only the identified adult cases where urine, blood and/or hair samples were collected for possible toxicological screening (at the discretion of the attending medical practitioner) were included. Standardized data sheets were constructed for data collection using the information in the patient folders and available laboratory results. This included socio-demographic information such as sex, ethnicity, age, and education level; characteristics of the incident, including location, assailant, injury and assault information; psychiatric, medical (including prescription medication use) and social (including alcohol and drug use) history; and results from preliminary toxicological screening of biological specimens.

The second component of the study was prospective and cross-sectional in nature, and covered a period of 12 calendar months (1 July 2015 to 30 June 2016). Adult survivors, who presented within 6 weeks after an alleged sexual offence, and who either showed clinical signs of acute intoxication, or who indicated or admitted that they suspected being under the influence of an intoxicating substance at the time of the alleged sexual offence, were invited to partake in the research. Where consent was obtained, and following a medico-legal examination and history taking, the attending clinician completed a standardized data sheet detailing the information highlighted above. Biological samples, which in addition to blood, urine and/or hair, included breath for alcohol screening, were collected during the medico-legal examination with approval from the patient. The prospective component of the study was an attempt to standardise the collection of information and samples, and to additionally screen for alcohol using preliminary breath alcohol measurements, which was previously not available.

3.3. Toxicological screening

During both components of the study, toxicological screening of blood, urine and/hair for common drugs of abuse was performed at the University of Cape Town's (UCT's) Division of Pharmacology. Liquid chromatography tandem mass spectrometry (LC-MS/MS) was used to analyze the specimens following simple sample preparation of dilution and acetonitrile protein precipitation (for blood) respectively. Samples were screened on a Shimadzu Prominence High Performance LC (HPLC) system coupled to an AB SCIEX API 3200 Q-TRAP MS (Applied Biosystems, Foster City, California). A rapid targeted screening approach using an AB SCIEX iMethod™ Application for approximately 200 drugs of abuse was used. Methods of additional screening, and/or targeted confirmation and quantitation were not available for this study. Breath samples were analyzed for ethanol on-site after 1 July 2015, using a Dräger Alcotest® 6820 hand-held breath alcohol testing device (Drägerwerk AG & Co. KGaA, Germany).

3.4. Data collection and analysis

All data collected from the standardized forms and laboratory reports was entered into a restricted access database by the principal investigator and descriptive analyses were performed. All data was treated as confidential and anonymity of all information obtained was maintained throughout the study period. Ethics approval was obtained from the University of Cape Town's Human Research Ethics Committee (HREC) (Ref. 037/2015) and the Western Cape's Health Research Committee (WC_2015RP18_373).