

PARTY DRUGS: EMERGENCY PRESENTATION CHARACTERISTICS AND COMPLICATIONS IN AN INNER CITY ADULT TEACHING HOSPITAL

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My name is Venita Munir, I am a staff specialist in emergency medicine at St. Vincent's Hospital here in Melbourne and I am the co-author on this paper that I am going to present to you today.

Due to anecdotal reports within our emergency department of a rise in the number of presentations due to party drug ingestions, we decided to look into this formally to try to work out what problems people are experiencing using these drugs and what resources these conditions are utilising, both in the hospital and the pre-hospital settings. My presentation today reports on the characteristics of presentation and the complications that we have been seeing in the population attending St. Vincent's in Melbourne. St. Vincent's Hospital is a major teaching hospital just on the border of the CBD. It is a tertiary referral centre and the emergency department sees around 35,000 patients per year.

We are all aware of the general increase in party drug use over the past few years. The death of a teenage girl in Sydney due to ecstasy; the regular occurrence of multiple GHB overdoses, particularly at large dance parties; a recent death in Sydney was attributed to GHB; a footballer was sacked from his club just last week for using ecstasy; and in South Australia there has been some reported deaths from PMA in Adelaide. These incidents have all brought heightened media interest and public awareness of the dangers associated with these drugs. (Referring to screen) And these are just a few of the headlines from the last month's papers.

There is plenty published about the prevalence of use of all these drugs, mostly obtained from the drug and alcohol research agencies. It is estimated that around 3% of Australians have used amphetamines and ecstasy in the past 12 months, and this information is based largely on household surveys and interviews with the drug-using populations. However, there is very little published data on the medical syndromes associated with the use and misuse of these drugs, particularly the complications experienced, and the hospital admission rates.

In terms of defining party drugs, I am sure that this audience understands which drugs I am referring to, but just for the benefit of people who may not: ecstasy is, MDMA, MDEA and MDA to a lesser degree; Gamma hydroxybutyrate or GHB and its analogues GBL and 1,4-B, which are anaesthetic agents, taken in liquid form, with very narrow therapeutics, in other words there is a very fine line between the dose for the desired euphoric effect and that which induces a coma; Amphetamine and its various derivatives; methamphetamine in the form of base of ice; cocaine being a naturally occurring stimulant and local anaesthetic; and ketamine, which is also an anaesthetic agent, still largely used in medicine and veterinary medicine today. It also has narrow therapeutic index like GHB.

In late 2002 I tried to ascertain the admission rates to emergency attributable to these drugs, by looking up discharge diagnoses, but I was pretty disappointed to find very low numbers. There was quite a considerable discrepancy between what my colleagues, the other doctors and nurses, were seeing and reporting. In some instances people were saying they were treating 5 GHB overdoses in a weekend and in fact for a whole year's data it only came up with 5. These were just based on what was in our electronic database and this is due to a lack of specific diagnostic codes being available for these relatively new drugs, so I was left with a question – were there more than this?

So we undertook this project. The aims of our project are to describe the presentation characteristics and complications of use of party drug ingestions and overdoses in the emergency department over a one-year period. And a secondary aim was to examine the use of pre-hospital and hospital resources associated with these presentations. However, this project is still in progress and so I will not be reporting on the latter today.

The population targeted for this study were all patient presentations involving ecstasy, GHB, amphetamine, ice, cocaine and ketamine. Formal testing for these substances is not routinely performed; urine drug screening takes hours to days and is still very non-specific for these drugs, and there is no commercially available testing for GHB and ketamine. So this means we can not say exactly what substances people are using and ultimately the drug-testing does not alter what we do in the emergency department, so for this study we have relied on patients' and friends' accounts of the drugs ingested.

In terms of methods, the study period commenced on the 1st December 2002 and continued for one year until the 30th November last year. The patients were identified first of all prospectively. At the time of presentation, patients who were suspected of having a party drug involved in their presentation, were flagged by the treating nurse or doctor. And then retrospectively we searched the electronic database, the patient administration system. We searched every emergency department presentation, every day, for key words in the triage comments and the discharge diagnoses, and we also searched the Victorian Emergency Minimum Data set (VEMD), injury surveillance data, for relevant overdoses and we then carried out a retrospective chart review of all these identified patients.

The results I am presenting today are preliminary results of a project that is still in process, it is still undergoing statistical analysis - so I apologise for that. In total, 181 emergency presentations were flagged and 31 patients were excluded after the chart review, either because of insufficient data, they did not wait to be seen, or, on reviewing the notes, they were not actually involving the drugs mentioned before. This left 150 presentations to be included in the analysis, which is less than half a per cent in terms of total emergency department presentations. However, it is unknown what percentage of total drug use within the community this represents.

(Referring to screen) Some basic demographic data of interest: This chart shows presentations by age and gender. There was a male preponderance – 62% of total presentations. The main age group was 20 – 24 years in both males and females. The

ages ranged from 16 – 60 years, with a female age range of 16 – 36 and the males' age range of 16 – 60. The mean age of presentation was 25.

It is not surprising that there was an increase in number of presentations on weekends, with 51 patients presenting on a Saturday, 41 presenting on a Sunday and, interestingly, 22 presenting on a Monday, which was due to increased presentations on public holiday days. We looked at the comparison between weekdays, weekends and public holidays and found that there are more than double the usual number of presentations on public holidays. As to be expected, many more people present in the early hours of the morning. (Referring to screen) As you can see, the most common time was between 4.00 and 8.00 a.m.

Two thirds of all patients presented between midnight and midday. And where did those people come from? Well interestingly, most of them came from home, followed closely by nightclubs, bars and pubs. Possibly those who were retrieved from the street have also been at nightclubs and bars, and I have certainly got some supporting evidence from the ambulance service regarding that. And there were surprisingly few coming from raves or major dance parties. The group of 'other' refers to people brought from police stations, prison and a couple from their local doctor. These presentations place quite a burden on the ambulance system with 63% of all presentations coming to us by ambulance.

The primary drug implicated in the presentation was most frequently, either: GHB, ecstasy or amphetamine. Cocaine and ice, as a separate entity, showed fairly low numbers, and ketamine was not described at all as the first drug of choice. As we have been hearing, there is a great tendency towards poly-drug use in this population, with 50% taking 2 or more drugs in combination. (Referring to screen) This graph has excluded alcohol from the picture and we still have 50% taking 2 drugs, 17% taking 3 drugs and 5% taking 4 drugs, preceding the presentation.

This by no means shows all the various combinations that people took, but it highlights the most frequent combinations and from a medical perspective the most concerning combinations. Amphetamine plus ecstasy heightens the stimulant effect and also raises the likelihood of higher blood pressure, cardiac arrhythmias and strokes. Cocaine also these properties but is much less seen in the Melbourne population than other amphetamines. Of particular concern are the combinations of the depressant drugs, especially GHB plus alcohol, GHB plus ketamine and ketamine plus alcohol. These drugs together obviously increase the likelihood of loss of consciousness with airway and breathing insufficiency.

We simplified the most common presenting symptoms into categories: Altered conscious state was the most common presenting symptom, but this could range from anything from altered behaviour, disorientation, confusion - through to collapse, faint, unresponsiveness and coma. Cardiac presentations were mostly palpitations or cardiac-type chest pain. Neurological presentations consisted of headaches, seizures, strokes and inter-cranial bleeds. Psychiatric presentations consisted of anxiety and panic through to paranoia, agitation, violence, mania, psychosis, hallucinations and suicide-ality. And the category other refers to injuries, infections, shortness of breath and vomiting.

(Referring to screen) overall there were only 7 patients out of 150 who had no abnormal vital sign or physical complication throughout their stay in the emergency department. Many of these complications pertain to abnormal vital signs, and the detail of this is really beyond the scope of this presentation. But of most concern are the number of those with altered conscious state, airway insufficiency, psychiatric disturbances and neurological and neuro-surgical complications; all of those are potentially life-threatening to the patient and particularly the psychiatric and behavioural problems pose considerable risks to other people.

Those requiring airway assistance numbered 37, which is about 25%. This is pretty concerning given the life-threatening consequences of an obstructed airway. Abnormal heart rate was seen in 26%, most of whom had tachyarrhythmias or a fast heart rate. Abnormal blood pressure was seen in 31%, most of whom had hypertension or high blood pressure. Neurological problems were very concerning, with 7 patients experiencing seizures and 5 diagnosed with inter-cranial bleeds or brain haemorrhages. One patient's lack of insight due to his intoxication resulted in a severe tiger snake envenomation, and his delayed presentation left him with numerous serious sequelae. Psychiatric disturbances were quite prevalent, with acute agitation and violent behaviour, psychosis being of most concern. Two patients had quite significant infections, one had acute hepatitis B and one had an abscess from intravenous drug use and they both required admission.

In conclusion, I must remind you that these are preliminary results only? The main drugs being seen to cause problems in Melbourne or at St. Vincent's are GHB, ecstasy and amphetamine; 50% took 2 or more of these drugs in combination, with some very concerning combinations emerging, namely more than one stimulant or combinations of the depressants GHB, ketamine and alcohol. The main presenting symptoms are altered conscious state, neurological, cardiac and psychiatric; the main complications being airway insufficiency, abnormal vital signs, especially tachycardia and hypertension, coma, psychiatric disturbances especially with violence, seizures and inter-cranial bleeds.

So, in summary, party drug ingestions are a relatively new group of syndromes facing emergency physicians with increasing frequency and whilst they comprise a small number of total emergency department presentations, they have many potentially life-threatening complications in a young population. Anticipation is very important, particularly on weekends and public holidays, and whilst no deaths have occurred in Victoria, it is important to recognise the syndromes and complications to prevent potential morbidity and mortality.

Thank you.