K51 A Study of Drug Detection in a Postmortem Pediatric Population

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By attending this presentation, the attendee will: (1) acquire data regarding drug prevalence in the young, and (2) understand some of the parameters which may affect the likelihood of detecting drugs and therefore, the utility of conducting drug testing.

With declining operational budgets resulting in decrease staff and resources, Coroner and ME offices need data in order to make informed decisions about the utility of providing comprehensive services for all cases. This presentation will provide information so that attendees may be able to assess the need to conduct toxicology testing in every pediatric case.

Deaths in the pediatric population comprise a small (in absolute numbers) part of the Coroner and Medical Examiner workload. Many young individuals who die are not autopsied and for a large proportion of those that are, little or no drug testing is performed. Therefore, in most jurisdictions, the prevalence of drug use in the young is unknown. This study was undertaken to provide some preliminary data to answer this question.

ll pediatric deaths accepted by The Office of the Cuyahoga County Coroner (CCCO) in Cleveland, Ohio in 2002 were reviewed. Demographic information including age, gender and race was collected. Cases in which the pathologist provided the laboratory with specimen were subject to toxicological testing. The heart blood or liver was subjected to comprehensive toxicological testing which included volatiles by headspace gas chromatography; acetaminophen, salicylate and ethchlorvynol screening by colorimetry; acidic/neutral and basic drug screening by liquid-liquid extraction followed by GC-FID or GC-NPD with confirmation by GC/MS; benzodiazepine screening by GC-ECD; and modified opiate immunoassay screening. If urine was submitted, immunoassay screening for amphetamines, benzodiazepines, cannabinoids, cocaine metabolites, phencyclidine, and opiates was conducted. One limitation of the study was that unless urine was submitted, or the case history suggested exposure, decedents were not routinely screened for cannabinoids.

In 2002, there were 129 deaths reviewed by CCCO. These were divided as follows:

Age	N
0 - 1 day	33
> 1 day - 2 years	43
> 2 years - 12 years	21
>12 years - 18 years	32

There were 77 males (60%) and 52 females and 55% of the individuals were black. The majority of the deaths were classified as natural (48%), with 31 (24%) accidents, 8 suicides and 13 (10%) homicides. For 9 cases, no sample was received or the sample was of insufficient volume for testing, and 5 cases were tested for volatiles only. Therefore, 115 cases were subject to comprehensive toxicological testing. No drugs were detected in 64% of these cases (N=115). Drugs administered during medical treatment, for pain and resuscitation, accounted for a further 19 cases or 16%. These drugs included lidocaine, morphine, phenytoin, midazolam, and pentobarbital. For the remaining cases, drug prevalence in descending order was as followscocaine/metabolites; cannabinoids; ethanol, and carbon monoxide. This preliminary data showed that the majority of cocaine/metabolite positive cases were newborns; and all cannabinoid positive cases occurred in teenagers who had violent deaths (by accident, suicide or homicide).

Pediatrics, Forensic Toxicology, Post Mortem

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