A Review of Deaths Involving Methamphetamine in Utah

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AIMS: We reviewed all deaths in Utah in which methamphetamine (MA) was identified in the decedent’s blood to: (1) determine whether the incidence of these deaths has changed over time; (2) examine the correlation, if any, between blood concentration of the drug and classification of death; and (3) describe demographic and toxicologic profiles of the decedents.

METHODS: Analysis for MA was conducted using GC/MS with a limit of quantitation of 0.05 mg/L. MA was detected in 525 deaths between 1995 and 2005.

RESULTS: For 88 decedents, the cases were classified as “MA-caused”; the drug’s toxic effects directly caused death. For 206 deaths, the cases were classified as “MA-related”; the drug’s effects contributed to the cause of death. The drug was present but did not contribute to or cause death in the remaining 231 deaths. The range of blood concentrations of MA were similar for both MA-caused (range: 0.16-10 mg/L, median: 0.39) and MA-related deaths (range: 0.07-11 mg/L, median: 0.32), with 87% of the deaths having concentrations less than 2.50 mg/L. The mode of death for 84% of MA-caused and MA-related deaths was classified as undetermined. In contrast, for cases in which MA was present but did not play a role in death, the most common modes of death were suicide (38%) and homicide (25%).

From 1995 to 2000, the average annual increase in deaths involving MA was 14%, rising to 28% between 2001 and 2005. In 1995, 25% of deaths involving MA also involved other drugs. By 2005, multiple drug deaths involving MA had risen to 63%; MA was frequently combined with cocaine, heroin, and alcohol. Beginning in 2001, prescription drugs (mainly methadone and oxycodone) were also increasingly present in deaths involving MA.

Eighty-five percent of deaths involving MA occurred along the Wasatch Front, the metropolitan region of Utah in which 70% of the population resides. In contrast, an analysis of numbers of deaths with respect to county population shows elevated rates in some rural counties as well. Although the average age of decedents in most deaths involving MA has remained between 21 and 54, the range of age of decedents has widened over time. The first fetal demise due to maternal MA abuse was reported in 1998 and there were 3 cases involving 63-year old decedents in 2004 and 2005. Male decedents continue to dominate, however, the proportion of female decedents increased from 9% in 1995 to 22% in 2005.

CONCLUSIONS: We conclude that both the incidence and complexity of these deaths has increased over time. In addition to blood concentrations of the drug, accurate classification of deaths involving MA requires consideration of other factors, including the possibility of polydrug use, an understanding of the changing demographic characteristics of decedents, and greater emphasis on other aspects of the autopsy investigation.

Keywords: Methamphetamine, Demographic, Incidence