K45 The Presence and Distribution of the Cocaine Like Stimulant Fencamfamine in a Postmortem Case

Kelsie D. Simons, MS, Criminal Justice Center, Sam Houston State University, PO Box 2296, Huntsville, TX 77314; Ashraf Mozayani, PharmD, PhD, Terry J. Danielson, PhD, and Harminder S. Narula, MD, J.A. Jachimczyk Forensic Center, Office of the Harris County Medical Examiner, 1885 Old Spanish Trail, Houston, TX 77054; Richard Li, PhD, Criminal Justice Center, Box 2296, Sam Houston State University, Huntsville, TX 77341; Luis Sanchez, MD, J.A. Jachimczyk Forensic Center, Office of the Harris County Medical Examiner, 1885 Old Spanish Trail, Houston, TX 77054*

Authors will report the detection of fencamfamine in a Medical Examiner's case, to remind the toxicology community of the abuse potential of this substance and to emphasize the internet as a modern source of illicit substances.

This presentation gives information about a banned, cocaine like drug over the internet and emphasizes the accessibility and harm of it to the public.

Fencamfamine (FEN, 2-ethylamino-3-phenylnorcamphane, Figure 1) is a conformationally-rigid, cyclic analog of amphetamine. It is approximately one tenth as active as d-amphetamine as a releaser of dopamine but possibly more potent than cocaine in some behavioral tests. In rodent models, FEN has been shown to produce central nervous system stimulation. In humans, FEN has been claimed to increase drive, mental alertness and feelings of well-being. It has been evaluated for the treatment of fatigue and depression and, at one time, was prescribed for its psycho-analeptic properties. Abuse of FEN has been reported among

athletes and it has been sold in the United States as cocaine. Experts have suggested it would be very difficult for an individual to distinguish FEN, in combination with a local anesthetic, from cocaine. FEN is not currently available by prescription and is listed as a banned substance by most athletic unions.

We report a drug-related fatality in which small amounts of FEN were detected. Death in this 51-year-old female was attributed to the combined presence in blood of hydrocodone (0.62 mg/L), alprazolam (0.2 mg/L) and sertraline (0.32 mg/L).

FEN was isolated from post-mortem specimens by extraction into 1-chlorobutane at an alkaline pH. Separations were achieved on a DB-5 capillary column (12 m, 0.23 mm id). The carrier gas (He) flow rate was 1.2 mL/min. The initial oven temperature was 50°C, rising after 1 min to 100°C (50°C /min) and held for 1 min. Oven temperature was increased at 20°C/min to 285°C and was held for 7 minutes. Under these condi- tions, the retention times of FEN and SKF-525A were 7.2 and 10.5 minutes, respectively.

Total ion spectra were collected over the mass range 40 to 450 amu. Chromatographic peaks corresponding to FEN and the internal standard were identified by positive matches to library spectra and by comparison of retention times to authentic reference standards. Major ions in the mass spectrum of FEN appeared at m/z 215 (m*) 98, 84 and 58.

Standard curves were constructed by analysis of drug-free blood spiked with FEN at concentrations of 0.01, 0.02, 0.05, 0.10, 0.15, 0.40 and 0.50 mg/L. Quantitation was by linear regression analysis of plots of relative peak area ratios (FEN area at m/z 98 / IS area at m/z 86) as the dependent variable and concentration as the independent variable. Triplicate control specimens containing 0.05 or 0.1 mg/L of FEN were assayed in parallel to the specimens.

Amounts of FEN in tissues were: 0.03 mg/L in blood, 0.44 mg/kg in liver, 0.02 mg/L in bile and 0.5 mg/L in urine. FEN in specimens chro- matographed as a single well resolved peak, without evidence of erythro/threo isomer separation. The n-dealkylated metabolite of FEN was not observed.

In spite of the notoriety associated with FEN this appears to be the first report of its presence in a forensic case, in the readily available lit- erature. The other unusual feature of this case is that the deceased appar- ently obtained this restricted substance through an internet source. The implication is that the internet must be realized as a modern venue of drug-diversion and distribution.

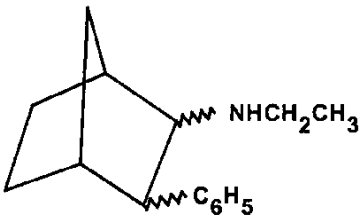

Figure 1: Chemical structure of Fencamfamine

Fencamfamine, Cocaine, Internet

 ** Presenting Author*