Society of Forensic Toxicologists, Inc.
P.O. Box #5543, Mesa AZ 85211-5543 Telephone/FAX: 602-839-9106

Silver Anniversary
“1970 - 1995”
Celebrating 25 Years

PRESIDENT
Vina Spiehler, Ph.D., DABFT
422 Tuslin
Newport Beach, CA 92663
714-642-0574
FAX: 714-642-2852

VICE PRESIDENT
H. Chip Walls, B.S.
Toxicology Lab Room 706
600 S. State St.
Syracuse, NY 13202
315-435-3802
FAX: 315-435-8439

SECRETARY
Vickie W. Watts, M.S.
Police Crime Laboratory
N. Robson
Mesa, AZ 85202
602-644-2077
FAX: 602-644-2478

TREASURER
Joseph J. Saady, Ph.D., DABFT
Virginia Commonwealth University
Medical College of Virginia Station
Richmond, VA 23298-0165
804-828-8165
FAX: 804-828-7722

ADDITIONAL DIRECTORS
W. Lee Hearn, Ph.D. 
Barry S. Levine, Ph.D., DABFT
Marilyn A. Huestis, Ph.D.
Michael L. Smith, Ph.D., DABFT
J. Robert Zettl, B.S., M.PA
ex officio:
Mark B. Lewis, DABFT
(Past President)
Joseph R. Monforte, Ph.D., DABFT
(ToxTalk Editor)

1995 Annual Meeting Host
Yale H. Caplan, Ph.D., DABFT
National Center for Forensic Sciences
Division of Met Path Laboratories
410 Sulphur Spring Rd.
Baltimore, MD 21227
410-536-1700
FAX: 410-536-1617

ToxTalk

VOLUME 19, No. 2 JUNE 1995

EDITOR: Joseph R. Monforte, PhD DABFT
EDITORIAL BOARD: H. Chip Walls, BS, Jim Wigmore, BSc, Carl Selavka, PhD
PUBLISHER: Patricia Mohn-Monforte

*NOTE!! To meet bylaws requirements, the deadline for the next issue of ToxTalk must be JULY 15th (firm!)

SOFT 25th ANNIVERSARY MEETING - BALTIMORE
MARK YOUR CALENDARS!
OCTOBER 9-14, 1995

07/01/95 Abstracts due
09/01/95 Free T-shirt for early meeting registration
09/01/95 Deadline for registration without late fee penalty
09/11/95 Hotel registration deadline - but register early to guarantee a room!
10/01/95 Sheraton Inner Harbor 410-962-8300 ($129 single, $139 double)
10/01/95 Deadline to register for meeting by mail
10/09/95 Workshops 1 & 2
10/10/95 Workshops 3, 4, 5 & 6
10/11-13 Welcoming Reception
10/12/95 Scientific program
10/13/95 ABFT breakfast
10/13/95 SOFT Annual Business meeting

For information contact Dr. Yale Caplan 410-536-1700 (FAX 410-536-1617)

IN THIS ISSUE

REGULAR FEATURES: 
Journal Club Professional Calendar
Blutalkoholkonzentration President's Message

TECHNICAL NOTES: Case Notes: A Mexiletine Poisoning? (Jackson)

INSERTS:* 1995 SOFT Meeting Information - Registration Form - 
Call for Papers - 1995 JAT Tennis Open 
1995 SOFT Membership Directory (members only)

*If available at time of mailing

ToxTalk is mailed quarterly (bulk mail) to members of the Society of Forensic Toxicologists, Inc. It is each member's responsibility to report changes of address to the SOFT mailing address (above). Non-members may now receive ToxTalk for $15 per calendar year. Mail a check, payable to SOFT, to the ToxTalk Editor.

All members and others are encouraged to contribute to ToxTalk. Mail material to: Joseph R. Monforte, Ph.D., DABFT, ToxTalk Editor, 846 Smoki Drive (H.P.), Prescott, AZ 86301 Phone/FAX: 520-717-0617 (after 11 a.m. E.S.T.)

DEADLINES: Feb. 1, May 1, Aug. 1*, and Nov. 1. NEXT DEADLINE: JULY 15, 1995

SOFT is a supporting organization of the American Board of Forensic Toxicology
FROM THE HEALTH AND SAFETY COMMITTEE

Members: Daniel Isenschmid (Chair), John Cody, Laurel Farrell and Elizabeth Marker

HEALTH AND SAFETY QUESTIONNAIRE RESULTS: A total of 22 questionnaires were returned by SOFT members. Respondents were unanimous in thinking that there is a need for the development of health and safety information for forensic toxicology laboratories. Six of the respondents said that they do not presently have safety materials available to them through other organizations or in-house support. Only 2 respondents were undecided on whether the SOFT Health and Safety Committee should prepare this information. Based on these survey results, the Health and Safety Committee will begin to examine ways that health and safety information can be collated and made available to the membership.

FUTURE ARTICLES: Tuberculosis (Marker), Occupational Drug Exposure (Cody), Chemical Spills (Isenschmid).

BIBLIOGRAPHY: With this issue of ToxTalk the Health and Safety Committee is presenting the first installment in a series of bibliographies of health and safety related topics which we hope will be useful to the membership. Please feel free to submit references that you feel are important and should be listed to: Daniel Isenschmid, Ph.D., Wayne County Medical Examiners Office, 1300 E. Warren, Detroit, MI 48207

BIBLIOGRAPHY - BIOLOGICAL HAZARDS (PART I)

SHOULD WE MEASURE MORPHINE-6-GLUCURONIDE IN FORENSIC CASES?

Dr. Alan Curry likes to say that "all the courts want to know is 'What did they take? How much? When? and Did it kill them?'" No forensic toxicologist likes to face these questions in a heroin overdose death or in a medical malpractice case involving morphine without knowing the concentrations of both free morphine and total morphine in the blood and, for post mortem cases, in the bile, liver, brain and peripheral blood, too.

Free morphine is simple if you have a free-morphine specific immunoassay, or if you can manage to extract that slippery little amphoteric imp from the biological specimen, it is easily derivatized. Total morphine is relatively simple, too, because in hydrolyzing the specimen with acid and heat you can simultaneously free morphine from its oxygen linkages to glucuronic acid and precipitate all those troublesome proteins in the same step. Perhaps it is too simple because you may be throwing out useful information with the glucose.

Once the morphine glucuronides were thought to be only inactive metabolites of morphine. This is no longer the case. Morphine-3-glucuronide may be an antagonist of morphine, and morphine-6-glucuronide is probably responsible for much of morphine's analgesic and toxic action. Although morphine-6-glucuronide has long been known to be a potent mu receptor agonist, in recent years clinical pharmacologists have recognized the role of M-6-G as an analgesic and as a toxic agent. The 1990 edition of Goodman and Gilman's Pharmacological Basis of Therapeutics notes that M-6-G is an active metabolite of morphine with half life of 4+/- .5 hours which may be increased to 50 +/- 37 hours in renal failure. M-6-G is estimated to have 4 times the potency relative to morphine when given parenterally, 10 times greater when given intrathecally, and 40 times when administered intracerebroventricularly. In man, 1 mg of M-6-G given parenterally produced prolonged analgesia which lasted more than 7 hours. Concentrations of M-6-G are dependent on the route of administration, and are usually lower than concentrations of morphine-3-glucuronide, but are higher than those of free morphine.

How much M-6-G is toxic? The new edition of Baselt's book (Disposition of Toxic Drugs and Chemicals in Man, 4th ed., Baselt and Cravey, 1995, p 530) reports that "Three renal failure patients exhibited prolonged respiratory failure after morphine administration, at a time when plasma morphine concentrations were less than 0.004 mg/L but morphine-6-glucuronide levels were 0.130-1.171 mg/L (Osborne et ai, 1986)."

It is not unusual for the elderly, cancer patients and burn patients in renal failure to receive morphine for pain during their peri-mortem period. In England, pharmacokinetic models for calculation of expected concentrations of M-6-G have played a role in court proceedings when accusations of euthanasia or medical overdose in these patients have arisen. Similar cases are currently in the courts in the USA.

So the pharmacology is proven. You should be measuring morphine-6-glucuronide in addition to free morphine and total morphine. But how? Currently, I only know of HPLC, RIA and LC/MS methods. I look forward to seeing how our SOFT members rise to this challenge. Liquid chromatographic methods have been neglected in forensic laboratories in the USA. Perhaps this will change.

Our field of Forensic Toxicology today is a very active and lively field to work in. Not only is every case different, but we still don't know all there is to know about drugs in the human body. A lot of the interesting developments in pharmacology in the future will come out of and reflect on our forensic casework. New drugs will be more potent, closer in chemical structure to the proteins of the body, and will present more analytical toxicology challenges. Good luck. I think that there is no more interesting occupation in all the world than ours.
The effect of food on the absorption of orally consumed alcohol is well known; however, in this paper food appears also to increase the rate of elimination of alcohol. After a fast of 18 hours, four healthy male subjects were given alcohol IV over 60 minutes to obtain a BAC of between 0.053 and 0.074 g/100mL. The alcohol infusion continued for another 2 hours, adjusted to maintain this BAC. The infusion was discontinued and blood samples were collected every 30 minutes for 4 hours. The rate of elimination of alcohol was then determined. The infusion was conducted on the subjects on 3 successive days. On the first day no food was consumed, and on the second and third days fatty-protein rich food and carbohydrate rich food were consumed 30 to 60 minutes after each start of the infusion.

The mean rate of alcohol elimination was 0.013 g/100mL/h with no food and increased to 0.018 g/100mL/h after consumption of fatty-protein-rich food and 0.019 g/100mL/h after consumption of carbohydrate-rich food.

The authors indicate that this increase in the rate of elimination of alcohol after food consumption may be due to an increase in free NAD or stimulation of the alcohol oxidation enzyme system.

---

Case Notes: A MEXILETINE POISONING?

Submitted by: George Jackson, Ph.D., National Medical Services, Inc., Willow Grove, PA

NMS was recently contacted by a toxicology consultant in the Middle East and asked to assist in a medicolegal investigation in a suspected homicide case. In brief, the parents of a 34-year-old woman were being charged with the suffocation of their daughter. Defense counsel maintained that the decedent died from an intentional drug overdose. The only drug that the decedent was prescribed to take on a regular basis was oxazepam. However, access to other medications by the decedent had not been ruled out. A simple drug test performed by a lab in the Middle East was negative. Blood and gastric specimens, along with a list of possible drugs, were submitted to this laboratory for a more comprehensive analysis.

Blood and gastric extracts were prepared and submitted for immunochemical, spectrophotometric, HPLC, and gas chromatography (with NPD, FID, and mass spectrometric detection) analysis. In the blood, mexiletine (an orally administered, Class IB antiarrhythmic agent), amitriptyline, nortriptyline, and sulpiride (an antipsychotic drug) were detected at 29 mcg/mL, 66 ng/mL, and 8.1 mcg/mL, respectively. Analysis of the gastric contents revealed about 2.6 g of mexiletine. Oxazepam was not detected in the submitted specimens. The source, mode and manner of ingestion and availability of the above drugs to the decedent is not known and, therefore, must be left to speculation.

Once again, the not-too-uncommon finding of unexpected drugs and metabolites in postmortem samples has raised as many questions as it has answers.

---

CALL FOR CASE NOTES

Your case note should be about 1/2 page in length, no more than a full page. Material or a disk (using Microsoft Works/Word 2.0) may be mailed to: Joseph R. Monforte, Ph.D., DABFT, ToxTalk Editor, 846 Smoke Dr. (H.P.), Prescott, AZ 86301

- or - Telephone/FAX: 520-717-0617 (new area code)

Other items of interest to SOFT members are also welcome. Next deadline: May 1, 1995

REGISTER EARLY FOR THE SOFT MEETING (BY JULY 1st) and receive a FREE T-SHIRT


73. Jones RG. Department of Chemical Pathology and Immunology, University of Leeds. Personal computer software for handling references from CD-ROM and mainframe sources for scientific and medical reports [see comments]. BMJ. 307(6897):180-4, 1993.


75. Kim SY, Benowitz NL. Department of Medicine, San Francisco General Hospital Medical Center, University of California. Poisoning due to class IA antiarrhythmic drugs. Quinidine, procainamide and disopyramide. [Review] Drug Safety. 5(6):393-420, 1990.


85. Langley JD, Begg DJ, Reeder AI. Department of Preventive and Social Medicine, University of Otago Medical School, Dunedin, New Zealand. Motorcycle crashes resulting in death and hospitalisation. II: Traffic crashes. Accident Analysis & Prevention. 26(2):165-71, 1994


88. Lau G. Department of Forensic Medicine, Institute of Science and Forensic Medicine, Singapore. Peri-operative deaths in Singapore: a forensic perspective in a study of 132 cases. Annals of the Academy of Medicine, Singapore. 23(3):351-7, 1994


91. Li G. Baker SP. Injury Prevention Center, Johns Hopkins University, School of Hygiene and Public Health, Baltimore, MD. Alcohol in fatally injured bicyclists. Accident Analysis & Prevention. 26(4):543-8, 1994


93. Lincoln TL. Traveling the new information highway [editorial; comment]. JAMA. 271(24):1955-6, 1994


97. Lombardero N, Casanova O, Behnke M, Eyler FD, Bertholf RL. Department of Pathology and Laboratory Medicine, University of Florida College of Medicine, Gainesville 32610. **Measurement of cocaine and metabolites in urine, meconium, and diapers by gas chromatography/mass spectrometry.** Annals of Clinical & Laboratory Science. 23(5):385-94, 1993

98. Lowe HJ, Barnett GO. Laboratory of Computer Science, Massachusetts General Hospital, Harvard Medical School, Boston. **Understanding and using the medical subject headings (MeSH) vocabulary to perform literature searches.** JAMA. 271(14):1103-8, 1994

99. Lowenstein SR, Weissberg MP, Terry D. Emergency Medicine Clinical Research Center, University of Colorado Health Science Center, Denver. **Alcohol intoxication, injuries, and dangerous behaviors—and the revolving emergency department door.** Journal of Trauma. 30(10):1252-8, 1990

100. Martin CS, Earleywine M. Center for Alcohol and Addiction Studies, Brown University, Providence, RI 02912. **Ascending and descending rates of change in blood alcohol concentrations and subjective intoxication ratings.** Journal of Substance Abuse. 2(3):345-52, 1990


104. McLellan BA, Vingilis E, Larkin E, Stoduto G, Macartney-Filgate M, Sharkey PW. Regional Trauma Unit, Sunnybrook Health Science Centre, Toronto, Ontario, Canada. **Psychosocial characteristics and follow-up of drinking and non-drinking drivers in motor vehicle crashes.** Journal of Trauma. 35(2):245-50, 1993


106. Modell JG, Taylor JP, Lee JY. Department of Psychiatry, University of Alabama School of Medicine, Birmingham 35294-0018. **Breath alcohol values following mouthwash use [published erratum appears in JAMA 1994 Feb 16;271(7):505] [see comments].** JAMA. 270(24):2955-6, 1993


108. Mounce NH, Pendleton OJ. Texas Transportation Institute, Texas A&M University, College Station. **The relationship between blood alcohol concentration and crash responsibility for fatally injured drivers.** Accident Analysis & Prevention. 24(2):201-10, 1992


118. Oxman AD. Sackett DL. Guyatt GH. Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario, Canada. Users’ guides to the medical literature. I. How to get started. The Evidence-Based Medicine Working Group. JAMA. 270(17):2093-5, 1993

119. Patel F. Guy’s Medical School, University of London. The fatal paracetamol dosage--how low can you go? [see comments]. Medicine, Science & the Law. 32(4):303-10, 1992


125. Perez-Reyes M. White WR. Hicks RE. Department of Psychiatry, University of North Carolina School of Medicine, Chapel Hill 27599-7175. Interaction between ethanol and calcium channel blockers in humans. Alcoholism. 16(4):769-75, 1992


348. Rainey PM. Department of Laboratory Medicine, Yale University School of Medicine, New Haven, CT 06510. Relation between serum and whole-blood ethanol concentrations. Clinical Chemistry. 39(11 Pt 1):2288-92, 1993


350. Reys LL. Santos JC. Institute of Legal Medicine, University School of Medicine, Lisbon, Portugal. Importance of information in forensic toxicology. American Journal of Forensic Medicine & Pathology. 13(1):33-6, 1992

351. Robertson MD. Drummer OH. Victorian Institute of Forensic Pathology, Monash University, South Melbourne, Australia. Responsibility analysis: a methodology to study the effects of drugs in driving. Accident Analysis & Prevention. 26(2):243-7, 1994

352. Roehrs T. Bear D. Zorick F. Roth T. Henry Ford Hospital, Sleep Disorders and Research Center, Detroit, MI 48202. Sleepiness and ethanol effects on simulated driving. Alcoholism. 18(1):154-8, 1994


355. Rovers JP. Janosik JE. Souney PF. Drake University College of Pharmacy and Health Sciences, Des Moines, IA. Crossover comparison of drug information online database vendors: Dialog and MEDLARS. Annals of Pharmacotherapy. 27(5):634-9, 1993


374. Wong SH. Department of Pathology, Johns Hopkins University School of Medicine, Baltimore, Maryland. Advances in chromatography for clinical drug analysis: supercritical fluid chromatography, capillary electrophoresis, and selected high-performance liquid chromatography techniques. [Review] Therapeutic Drug Monitoring. 15(6):576-80, 1993


October is a popular time in Baltimore - so reserve your hotel room early!

ELMER GORDON OPEN FORUM
AN OPPORTUNITY FOR INFORMAL DIALOGUE

From Jeorg N. Pirl, Ph.D., DABFT (edited): I am sorry to have to inform you of the passing of G. Fred Townsend. Mr. Townsend retired in 1992 and passed on within a year. He was past eighty years old. Fred Townsend, a fermentation chemist and microbiologist, took up forensic toxicology in 1960 and trained under Dr. Robert Blanke. He never stopped learning, and gained Diplomate status during the early years of ABFT and SOFT. Fred continues to live in the memory of his friends, family and co-workers.

ANSYS OFFERING $15,000 AWARD FOR OUTSTANDING APPLICATIONS USING SOLID PHASE EXTRACTION USING SPEC AND $1,000.00 FOR SUBMITTING SPEC ARTICLES TO ACCEPTED REFEREE JOURNAL. Deadline: June 30, 1995. For further information, including a list of acceptable journals, telephone Darrell Adams, Ansys/Toxi-Lab, at 800-854-0277 or Fax 714-770-0863. (repeated from previous issues)

CAREER OPPORTUNITIES

Positions available are listed for the consideration of SOFT members. There is no fee for this service. The information will be repeated in the next issue only if the information is confirmed by the person who submitted it. (No items were submitted for this issue of ToxTalk.)

PROFESSIONAL CALENDAR


Analytical and Molecular Biological Techniques in Environmental Toxicology and Forensic Sciences: September 11-12, San Juan, Puerto Rico. Sponsored by Puerto Rico Chemists Assoc and the American Registry of Pathology, $200. Contact Dr. Jose Centeno, AFIP, 14th & Alaksa Ave. NW, Washington, DC 20306-6000. Ph 202-782-2839, Fax 202-782-9215


FUTURE S.O.F.T. MEETINGS: 1996 - Denver, CO

REMINDER - S.O.F.T. CONTACT INFORMATION:

📞 VOICE MAIL & FAX 602-839-9106
✉️ MAILING ADDRESS P.O. Box 5543, Mesa, AZ 85211-5543

Submit your items for ToxTalk to:

Dr. Joseph Monforte, 846 Smoki Dr (HP), Prescott, AZ 86301

(print date: 5/24/95)