Society of Forensic Toxicologists, Inc.
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ToxTalk

VOLUME 23, No. 2 • JUNE 1999

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EDITORIAL BOARD: H. Chip Walls, B.S., Jim Wigmore, B.Sc., Daniel Isenschmid, Ph.D., DABFT, Vincent Papa, Ph.D.
PUBLISHER: Patricia Mohn-Monforte

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INSERTS: 1999 SOFT Meeting Information and June Update • “The Effects of Alcohol & Drugs on Human Performance & Behavior” seminar flier • 1999 SOFT Directory (members only)

SOFT 1999 Annual Meeting: October 9 - 14

WESTIN RIO MAR BEACH RESORT
Rio Grande, Puerto Rico

For reservations, phone 800-474-6627 (or 787-888-6000) or fax 787-888-6000
See insert for more information.

VISIT THE SOFT WEBSITE: www.soft-tox.org
I hope you all submitted your abstracts for the 1999 SOFT meeting in Puerto Rico by the June 1st deadline. This promises to be a wonderful meeting both scientifically and socially. The number and quality of submitted abstracts largely determines the scientific character of the meeting, so please make the effort to share your experience and knowledge with the rest of us. We all realize that the opportunity to learn from and network with each other is one of the primary benefits of attending the annual meeting. Don't forget that there will be four $1,000.00 awards for the best two poster and oral presentations at the upcoming meeting to honor members' scientific contributions. Thanks are owed to Flor Mattos and our Puerto Rican host committee, Laurel Farrell and Bob Zettl for organizational efforts, Lee Hearn for the scientific program and Lisa O'Dell for exhibitor and sponsorship activities.

We were all disappointed that JCET decided to disband recently due to many organizational issues that limited the committee's ability to function effectively. The idea of continuing education for all members is still one of the SOFT Officers' and Board of Directors' highest priorities. I have asked Christine Moore to chair a new Ad Hoc committee on continuing education for SOFT. I have given her a large number of suggestions on how SOFT could further continuing education at both the regional and national levels. The annual SOFT meeting has become one of the best values for your educational dollar, as well as one of the most prestigious toxicology meetings held throughout the world. In addition, many of our meetings have been very successful financially. In large part this is due to the great support we receive from our sponsors. The more people that attend the meeting, the easier it is to obtain financial sponsorship. Our goal is to find ways to support all SOFT members; those who are fortunate enough to attend the annual event and those who do not get the opportunity to travel. If you are interested in serving on this committee or you have ideas about how we can provide additional training, please email myself (mhuestis@irp.nida.nih.gov) or Christine (mecstat@earthlink.net). I have asked Christine to provide a detailed report to the Board in October.

Your SOFT committees have been very active during the last few months. Please carefully review the Bylaws which will be included in the next issue of ToxTalk and be prepared to vote on the document at the annual meeting. Our goal is to have the Bylaws current and readily available to all interested parties on the SOFT web-site. The Forensic Toxicology Guidelines Committee is updating and revising the Guidelines and reformating the document in a more user-friendly style. The new document should be available for membership review and appraisal at the 1999 annual meeting. The Drugs and Driving Committee has available its new benzodiazepine monograph. Contact Chip Walls (hchipw@aol.com) or Vickie Watts (toxilady@aol.com) to request the manuscript. We are all anxious to review the new SOFT Special Issue that is being edited by Bruce Goldberger this year. Tinsley Preston is going to include a copy of each meeting attendee in the registration packet. Joe Monforte needs interesting case studies, articles and reports for ToxTalk. Please consider a contribution - another way for you to actively participate and improve this organization. Joe Saady and the new Visioning Workgroup will present their findings at the annual meeting, and Bill Anderson is attempting to finalize the SOFT Policies and Procedures document for your review. Hats off to all those who freely give of their time and energy to make SOFT the friendly, effective organization that it is.

The Board is trying to upgrade the capabilities of the SOFT Administrative Office and improve communication with our wonderfully efficient and helpful assistant - Bonnie Fulmer. We hope to significantly increase our computer capabilities and make interchanges faster and better than previously possible.

Mark your calendars for SOFT 2000 - Milwaukee, WI, 2001 - New Orleans, LA, 2002 - Detroit, MI, 2003 - Portland, OR. We have a number of proposals for the meetings in 2004 and 2005. Please consider hosting a meeting yourself. SOFT will help provide financial and organizational support to ensure that the meeting will be a success. Laurel Farrell and her committee are completing the Meeting Host Guidelines that contain the essence of years of experience in hosting SOFT meetings that will help you plan a great meeting. I heard a rumor that there was going to be lots of hospitality suite activity in Puerto Rico! I look forward to seeing or meeting you there.

I am very much enjoying being your representative this year. Please consider participating in a more active manner by contacting any of your officers, directors or committee chairs.

1999 SOFT Committees and Chairs

Bylaws - Yale Caplan  Budget, Finance & Audit - Jim Valentour
Membership - Mick Smith  Nominating - Joe Saady
ToxTalk - Joe Monforte  Publication (JAT) - Bruce Goldberger
Education Research Award - Barbara Manno  Drugs and Driving - Chip Walls
Policy and Procedures - Bill Anderson  Web Site - Bruce Goldberger
Meeting Resource Committee - Bob Zettl  Forensic Toxicology Lab - Graham Jones
Guidelines (AAPS/SOFT) - Ad Hoc Committees:

1999 - Puerto Rico - Flor Mattos  Visioning Workgroup - Joe Saady
2000 - Milwaukee, WI - Steve Wong/Sue Gock  Drug Facilitated Rape - Marc LeBeau
2001 - New Orleans, LA - Pat Pizzo  Continuing Education - Christine Moore
2002 - Detroit, MI - Dan Isenschmid/Brad Hepler
2003 - Portland, OR - Kent Johnson
'99 SOFT MEETING UPDATE

Remember that great packet of information about the 1999 SOFT meeting that was included with the March issue of ToxTalk? It was so good, we're including it again - preliminary meeting program, workshop descriptions, hotel reservation form for the Westin, meeting registration form, Fun Run form, and other meeting related information. And you can look forward to the same materials in the September issue.

We will keep you informed of any additions and/or changes by preparing an "update sheet" that will be included in this and the next issue of ToxTalk. Each "update sheet" will supercede all prior information.

The June update sheet provides information on: Optional tours and transportation from the airport.

For additional information, please contact one of the meeting committee members listed below:

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<th>Host</th>
<th>phone (voice)</th>
<th>fax</th>
<th>e-mail</th>
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<tbody>
<tr>
<td>Flor Mattos</td>
<td>787-765-0615</td>
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You may contact President Huestis through her e-mail address at: MHuestis@irp.nida.nih.gov

REPORT ON INTERIM SOFT BOARD MEETING

Submitted by Michael L Smith, Ph.D., DABFT, SOFT Secretary

The SOFT Board of Directors held their interim meeting during the Academy of Forensic Sciences Annual Meeting in Orlando, FL, on February 16, 1999. The Board reviewed the Bylaws that are now in electronic format with typographical editing completed. Since the general membership must vote on further changes, the Board directed the Secretary to submit a copy of the Bylaws with suggested corrections to Yale Caplan, Ph.D., Chair, Bylaws Committee. Dr. Caplan will send proposed changes for publication in ToxTalk allowing members to review them before the next SOFT annual meeting.

Dr. Rao announced that the 1998 SOFT-TIAFT Joint Meeting in Albuquerque was very successful and produced a positive balance. Final figures were not available because all expenses had not been paid. TIAFT will receive a portion of these proceeds commensurate with attendance by their members. Flor Mattos gave an update on next year's meeting in Puerto Rico. It was unfortunate that the Hilton Hotel cancelled but this may have been fortunate. The replacement hotel, Westin's Rio Mar Resort, will have the original Hilton room rate. The Hilton will pay the room cost difference and cover many items such as green fees on the golf course, special resort fees, some of airport transportation costs, etc. The Rio Mar is on the ocean, close proximity to the Enu Rainforest and has many advantages for meeting rooms and entertainment activities. The Board reviewed updates on future meetings; 2000 Milwaukee, 2001 New Orleans and 2002 Detroit. A proposal by Kent Johnson for meeting at a West Coast site, Portland, OR, in 2003 was presented by Bob Hara and approved by the Board. The President and Vice President are discussing future sites with individuals who will sponsor the meetings.

The Benzodiazepine Monograph is now available. Request a copy from Chip Walls. Order forms will soon be on the Web-site. The Web-site continues to be active, and in the near future, following security upgrades to protect members' credit card accounts, online registration for meetings will be offered.

Bruce Goldberger, Ph.D., editor of the next Journal of Analytical Toxicology Special Issue, reminded Board members that the deadline for abstracts was March 8, 1999, and for full papers March 22, 1999. The Board reviewed a motion to increase each ERA travel award from $750 to $1,000 and a separate motion to have an award of $1,000 each for the four highest quality abstracts, two poster and two oral, presented at each SOFT annual meeting. These motions were approved, and the President directed Chairs of the appropriate committees to begin these awards at the next SOFT meeting in Puerto Rico.
Drinking-After and Urine Sampling.


In Germany the only defenses available in drinking-driving cases beside the police officer making a mistake or having an identical twin is that drinking occurred after the accident. In these drinking-after cases, legislation allows a second blood sample to be collected at least 30 minutes after the first to determine the veracity of the situation. The author states that in Cologne, however, a urine sample is requested rather than a second blood sample, and that the urine sample provides a much better indication of drinking-after than does the second blood sample or even congenor analysis.

The theoretical aspects of urine alcohol concentrations are discussed as well as a case report. In this case, a male driver collided with a parked car at 2:10 a.m. The police arrived at 6:45 a.m., and the breath Alcotest result was 0.042 g/210L. Blood samples were collected at 8:25 a.m. and 8:59 a.m., and the BACs were 0.026 and 0.013 g/100mL, respectively. A urine sample was collected at 8:59 a.m., and the UAC was 0.150 g/100mL. The author concludes that the driver did not drink the alleged “two beers” after the accident.

The author states that the timing of the collection of the blood and urine samples is not important but that no micturation should occur between the accident and the time the urine sample is obtained.

The author also warns against dilution of the urine sample with tap water or cleaning fluids by the accused at the police station and that after the urine sample is collected the container should be warm to touch.

CASE REPORT: Detection of Lormetazepam in Hair Following a Sexual Assault.

Submitted by: Michael D. Robertson (Ph.D.) National Medical Services Inc., 3701 Welsh Road Willow Grove, PA 19090, USA

Lormetazepam (Loramet, Noctamid), like flunitrazepam, is a potent benzodiazepine available in Europe as a night time sedative for the short-term management of insomnia. Usual doses are from 0.5 mg to 1.5 mg by mouth at night. Following a dose of 1 mg and 3 mg, mean peak plasma concentrations approximated 6 ng/mL and 16 ng/mL, respectively (n=6). Similarly to flunitrazepam, lormetazepam has been suspected as a drug used to facilitate sexual assault. Lormetazepam produces the characteristic pharmacological profile of other benzodiazepines, but like flunitrazepam, is difficult to detect in biological specimens due to its low concentrations and relatively short half-life.

National Medical Services received a hair specimen 20 cm in length, weighing approximately 1.4 grams, from an individual following the possible ingestion of lormetazepam. The individual was allegedly sexually assaulted, after last remembering drinking a beverage, possibly containing the lormetazepam, and awoke aware of recent sexual penetration. Subjective effects of the drug were reported to last 2 to 3 days. The suspect, a middle aged male with a prior, related criminal record, was previously prescribed lormetazepam and was found with lormetazepam on his person, but denied using it for the purposes of sexual assault.

Initial analysis by EMIT was negative, however lormetazepam does not cross react well with the SYVA benzodiazepine kit used for screening in this case. To gain sensitivity, 200 mg of hair were extracted instead of the usual starting mass of 50 mg. The TMS derivative of lormetazepam was subsequently detected by GC-MS at approximately 2 ng/g of hair. The monitored ions were m/z 377, 317 and 291.

Confirmation of the presence of lormetazepam was performed by LC-MS - electrospray, using 200 mg of hair. The protonated molecular ion (m/z 335) together with the fragment ions m/z 291 and 289 were monitored. Further confirmation was performed by tandem mass spectroscopy (LC-MS-MS). The collisionally-induced dissociation transitions monitored were 335>317 and 335>289.

In this case it is unclear from the evidence whether the lormetazepam in hair is from a single or multiple ingestion of lormetazepam.
Recently, the "Date Rape" drugs Rohypnol (Roofies) and Gamma Hydroxy Butyrate (GHB) have been given much media attention. Historically, various drugs have been used in this capacity including hypnotics, depressants and other amnesia causing agents, examples of which are alcohol, chloral hydrate and midazolam. In order to assist in their detection in solution, pharmaceutical companies have even added bluing agents to their preparations. In response to demand by law enforcement agencies, forensic laboratories have developed new methods for their detection. During the 1998 SOFT meeting in Albuquerque, a number of papers were presented on these drugs. Elsohly et al. (1) demonstrated in a recent series of specimens analyzed from all over the country, only a small number of these were positive for these agents. Recent report of date-rapes in the United States and Colombia have implicated the use of "Burundanga" in the United States. Burundanga is the Colombian local name given to a plant preparation whose active ingredient is scopolamine.

Scopolamine is an alkaloid that occurs in the shrub Hyoscamus Niger and Datura stramonium (jimsonweed). Scopolamine is composed of a tropic acid residue attached to a complex organic base - scopine. It's antimuscarinic properties cause CNS depressant actions with higher doses resulting in unconsciousness and complete amnesia. Therapeutically, it is used as a preanesthetic, in the treatment of Parkinsonism, GI disorders and for the treatment of motion sickness. However, this application has been replaced by more efficient agents. Dosage forms run from 0.1 --0.5 mg as a hydrobromide salt. Dermal patches contain 1.5 mg of scopolamine and deliver 0.5 mg per day. Blood concentrations of scopolamine vary from 1.1 ug/L observed at 1 hour declining to 0.3 ug/L by 4 hours (2). The application of a 0.5 mg transdermal patch to 8 subjects produced plasma scopolamine concentrations that increased gradually to an average of 0.13 ug/L by 24 hours (3). The half-life of scopolamine has been calculated as 46.8 minutes. About 4-5% of a single dose is excreted unchanged in the urine after 2 days (4).

Scopolamine acts by antagonizing acetylcholine competitively at the neuroreceptor site. It also has antimuscarinic action. Blood pressure increases, pulse rate may decrease, pupils become dilated and hallucinations may occur. Symptoms following acute transdermal use have included drowsiness, dry mouth, reduced concentration, confusion and hallucinations (4). Adverse reactions to scopolamine include double vision, dryness of throat, dilated pupils, skin flushing, hallucinations, coma and death. A fatal dose of scopolamine in a child is as low as 10 mg, but survival in adults following the ingestion of 1,000 mg has been reported (5). When transdermal scopolamine has been used for more than 3 days, withdrawal of its use can cause dizziness, nausea, vomiting, headache and disturbance of equilibrium (4). An examination of the literature shows no immunoassays for scopolamine; however, a radioreceptor assay for the analysis of plasma and urine has been developed (3). Gas chromatography-mass spectrometry (GC/MS) and High Pressure Liquid Chromatography (HPLC) methods have been described (6,7).

References
Blue Nitro – Diet Supplement or Illegal Drug?

Submitted by Vincent Papa, Ph.D., Air Force Drug Testing Laboratory, Brooks AFB, Texas 78235*

Recently, ABC and other news organizations have reported on the increasing rate of use and abuse of the product, Blue Nitro. Furthermore, it has been linked to one death and 54 cases of severe reactions including seizures and comatose like states. The chemical is gamma-butyrolactone (GBL) and is sold in a number of health food stores nationwide with claims that it builds muscle, enhances sexual performance and reduces stress. Experimentally, GBL can be produced from gamma-hydroxy butyrate (GHB) by treatment with mild acid and heat (1). After ingestion, GBL can break down to GHB by metabolic processes.

There are therapeutic and illicit uses for GHB. GHB is used in European countries as an anesthetic adjunct. Since 1960, it has been used as an experimental treatment for cerebral edema, narcolepsy, tachycardia and as an aid in childbirth. On the illicit market, GHB has been heralded as a steroid alternative for bodybuilding and as a tryptophan replacement for weight control and sedation.

Palatini et al. (2) have shown that a 25 mg/kg oral dose caused dizziness or drowsiness in eight adult subjects with an average GHB level of 80 mg/L at 0.5 hrs. Other studies have shown that an intravenous dose of 50 mg/kg produced a peak plasma level of 170 mg/L within 15 minutes. GHB is believed to be metabolized by alcohol dehydrogenase. Less than 5% of the dose is eliminated unchanged in the urine (3) and peak urine GHB concentrations on the order of 1100 mg/L are observed within the first 4 hours after a 100 mg/kg oral dose, with the drug being undetectable after 12 hours.

The effects of GHB include drowsiness, euphoria, dizziness, nausea, and visual disturbances. These effects usually manifest by 15 minutes after administration and persist for three hours on average (4). Dyer and others (5,6) have shown that serious adverse reactions such as hypotension, bradycardia, respiratory depression, seizures and coma can occur.

GHB levels can be measured by gas chromatographic flame-ionization, electron capture and mass spectrometric detection methods (7,8,9) with conversion of GHB to the gamma-butyrolactone in the hydrolysis step of the extraction procedure. Recently, a solid phase extraction procedure has been introduced by a number of manufacturers.

The FDA is investigating 55 cases of severe reactions including one death after GBL ingestion (10). Nineteen individuals lost consciousness and many had difficulty breathing requiring serious medical interventions. Several users have been found incoherent while driving. The agency is considering sanctions and seizures.

References:


*The opinions expressed herein are strictly those of the author and are not to be construed as reflecting the views, policies, or positions of the Department of the Air Force, the Department of Defense, or the U.S. Government.

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Opium - The Golden Crop  
Submitted by Joseph R. Monforte, Ph.D., DABFT

Afghanistan remains the single largest opium producer in the world, according to United Nations' figures. It produces 45% of the world's opium, more than 2,000 tons. It is estimated that Afghanistan farmers and the Taliban, through taxes, make $130 million from poppy production each year. The heroin produced from this opium generates more than $80 billion for narcotics dealers in the West.

Farmers refer to opium as the "golden crop" - it is cheap to cultivate and lucrative when harvested. Without a substitute crop and a viable economy, no one can force the farmers to stop growing poppies. Taliban leaders suggest international agencies like the United Nations should help build irrigation canals, roads and factories to entice farmers away from growing poppies.

More On "Fen-Phen"  
Submitted by Joseph R. Monforte, Ph.D., DABFT

The Dallas Morning News reported that testimony involving lawsuits against the manufacturer of one of the components of "Fen-Phen" (fenfluramine, Wyeth-Ayerst Laboratories) alleged that Wyeth hired "ghostwriters" for articles promoting obesity treatment and then used prominent researchers to publish the works under their names. The legal actions claim that Wyeth-Ayerst hid health risks associated with the drugs. The company allegedly tried to play down or remove descriptions of side effects from the articles.

Only two of the ten articles paid for by Wyeth actually were published in medical journals before the company pulled the drugs from the market in September 1997, when studies linked the combination to heart valve damage and an often fatal lung disease. Plans to publish the eight other articles were canceled.

Officials at Wyeth defended the articles stating that this is a common practice in the industry and that the companies have some input in the initial development of the piece, but the proposed author has the last say.

I999 SOFT MEETING DEADLINE REMINDERS:

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<tr>
<td>Aug. 15</td>
<td>Registration without late payment</td>
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<tr>
<td>Sept. 10</td>
<td>Hotel registration with reduced SOFT rates</td>
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ABFT News

Dr. Joseph Monforte, Vice President and former Chairman of the Committee on Credentials, announces that the following Diplomates recently requalified for ABFT certification as Forensic Toxicologists: William C. Bress, Ph.D., William D. Hemphill, Ph.D., Graham R. Jones, Ph.D., Raymond C. Kelly, Ph.D., Andrew Mason, Ph.D., Robert C. Meatherall, Ph.D., Timothy P. Rohrig, Ph.D., and Karl Verebey, Ph.D.

All future requalification applications and membership questions should be referred to Dr. Marina Stajic who has been appointed chairman of the Committee on Credentials by ABFT President Caplan.

ABFT Breakfast (Wed., 10/13, 7:00 a.m. - 8:30 a.m.): Send a $20 check payable to ABFT to ABFT Treasurer Richard Shaw, 5270 Joan Court, San Diego, CA 92115. A convenient registration form is included in the June Meeting Update sheet with this issue of ToxTalk.

For more information on ABFT activities, try their web-site at: www.abft.org

1999 SOFT MEMBERSHIP DIRECTORY

The 1999 SOFT Membership Directory is included in this issue of ToxTalk. This directory is prepared by the SOFT Administrative Office. ToxTalk copies and distributes the directory. If you have any questions or changes, please contact the SOFT Administrative Office.
ELMER GORDON OPEN FORUM
AN OPPORTUNITY FOR INFORMAL DIALOGUE

Joseph Monforte and his family thank those who expressed their sympathy and offered their support during his father's illness and subsequent death.

Send items for this section to ToxTalk or fax Editor Joseph Monforte at 480-595-6663 (note: area code will change to 480 in August).

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. If you have a job position available, FAX (480-595-6663) or E-MAIL (DrMonforte@aol.com) to ToxTalk or mail to: Dr. Joseph Monforte, ToxTalk Editor, 42408 N. Sombrero Rd., Cave Creek, AZ 85331-2821.

Postdoctoral positions: Recent Ph.D. grads in tox, biochem, pharmacol. or related field for 1-yr training program in forensic toxicology, July 1999 - June 2000, in modern forensic tox lab to learn analytical tox techniques, interpretation of results, expert witness skills, etc. $25K stipend. Completion will prepare for ABFT examination, a requirement for ABFT certification. Contact James Kouten, 700 N 5th St, Richmond, VA 23219 (Ph: 804-786-7299, Fax: 804-786-6857)

Chief Forensic Toxicologist to supervise forensic tox lab which provides postmortem tox, human performance testing, and drug I.D. for law enforcement agencies and county coroners. Must have PhD in toxicology, chemistry or bio-chemistry, 7 yrs relative experience, and ABFT certification. Duties include: supervise tox division, consultation to drs. and law enforcement, administrative responsibilities, testify, teach, and interact with other agencies. Salary $52,258 - $76,371. Contact Sedgwick County Regional Forensic Science Center at 316-383-4500 or email SVG2253@AOL.COM.

Toxicologist / Laboratory Manager at Medical College of Virginia. Prefer MS or PhD Clin, Forensic Tox & FUDT. GC/MS experience a must. Contact Dr. Alphonse Poklis at apoklis@hsc.vcu.edu or call him at 804-828-0272 for details.

Don’t forget to check the SOFT Web site for current career openings:
www.soft-tox.org

PROFESSIONAL CALENDAR

SOFT MEETING: October 10-14, 1999. Contact Flor R. Mattos, Institute of Forensic Sciences, P.O. Box 11878, San Juan, Puerto Rico. Tel: 787-785-0615 Fax: 787-759-8908


Forensic Toxicology Seminar "The Effects of Alcohol & Drugs on Human Performance & Behavior" - July 20-21, 1999. See flier enclosed in this issue of ToxTalk or contact Jennifer Limoges at 518-457-1208 or jlimoges@troopers.state.ny.us.