

Quote of the Month:

"When friends come to Rome in early summer to visit me I like to take them to the Pantheon during thunderstorms and stand them beneath the opening of the feathery, perfectly proportioned dome as rain falls through the open roof against the marble floor and lightning scissors through the wild and roiled skies."

Pat Conroy in Beach Music 1995

- 1 Meeting began at 11:30 am and adjourned at 1:20 pm.
- 2 Members present: Cherington, Foley, Glancy, Gustafson, Hedegaard, Keen, Kimberling, Langford, Rossie, Seimon, Toler, Yarnell.
- 3 New members introduced:
 - a. Holly Hedegaard, MD, MSPH of the Injury Epidemiology Program, Colorado Department of Public Health and Environment. She is co-editor of the Colorado Trauma Bulletin.
 - b. Anton Seimon who was involved in lightning research at the SUNY (South University of New York) in Albany. Prior to that he worked on triggered lightning experiments in Florida. His current interests include lightning detection networks.
 - c. Cheryl Toler. Prior to her current position with Ortho-Neuro-LDC, she was with Department of Pathology at St. Anthony. Prior to that she was with the Lakewood Orthopedics Group.

- 4 I brought to the attention of the group two recent articles:

a. Electric Cataracts by M. Portellos et al. in Arch Ophthal August, 1996. The authors state: "Patients at highest risk are those who have been exposed to voltages in excess of 1000 V and who have entrance wounds on the head or neck. The incidence of cataract formation varies between 5% and 20%, and most patients develop initial loss of vision within 12 months of the injury."

b. An article by M.V. Knopp et al in Radiology, August 1996 entitled: Unusual Burns of the Lower Extremities Caused by a Closed Conducting Loop in a Patient at MR Imaging. The authors state that "tissue heating due to radio-frequency (RF) fields is an established safety concern during MRI. This is monitored by specific absorption rate (SAR)..Tissue burns caused by electrical conductance have been reported when a conducting loop was inadvertently created between some conductor, such as ECG monitoring leads or surface coils, and the skin...Findings in phantom studies have demonstrated that RF fields can cause focal heating if the exposed object is of non-uniform thickness." They report a case of a patient who developed third-degree burns on his calves "after conventional MRI on a clinical 1.5T system that operated within safe limits."

I reported on the recent annual meeting of the Society for Physical Regulation in Biology and Medicine (SPRBM) in Chicago. A special afternoon session devoted to Lightning Injuries was, in my estimation, most successful. Those present for that session were: Raphael Lee, President of SPRBM; Mary Ann Cooper, HJ ted Dius; Ron Holle; Raul Lopez, HJ; Peggy Primeau; and me. All the participants were

enthusiatic about the program and believe that we should make plans for future meetings.

Phil Yarnell suggested we attach a copy of the program of the SPRBM lightning session with these minutes.

- 5 Julie Kimberling reported on our efforts to obtain data on Colorado lightning injuries for the years 1993, 1994, and 1995. With improved coding methods, outpatient data for the year 1995 should be improved as compared with outpatient data for years before 1994. Julie, Michael Boyson of Colorado Hospital Association, and I shall meet before our next LDC meeting to discuss getting data on inpatients, outpatients, and death certificates. Holly Hedegaard offered to help obtain data from death certificates. I have recently communicated with Ron Holle and Raul Lopez of the National Severe Storms Laboratory. If they can provide data from NOAA's Storm Data for the same period of time, we should be able to learn more about the "under-reporting" of lightning casualties.

- 6 Phil Yarnell spoke of two interesting lightning cases.
- a. His daughter's friend described a lightning fatality in June 1995 in Wyoming. The 45 year old school teacher was near a picnic table beside a lake when lightning struck the lake. Current travelled from the water to the ground to the table. The patient complained that her legs were numb and a few seconds later lost consciousness. That incident is said to have been reported in the Boulder Daily Camera newspaper (June 16 to 19).
 - b. His sister-in-law played golf with a lawyer from Bozeman, Montana who was struck by lightning 2 years ago. He was paraparetic then and improved but still is unsteady walking. His golf game is improved.

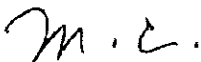
Phil spoke about his inability to obtain information about a lightning casualty who was hospitalized elsewhere in the metro area. We had a lengthy discussion about how we might obtain clinical data on lightning victims who are in other hospitals. How do we approach these hospitals without being perceived as a threat; to assure them we would not charge a fee; that we would respect patient confidentiality. Peggy Gustafson suggested that we try to contact the patient's doctor, if we knew who the doctor was. Holly Hedegaard described the steps that would have to be taken to have lightning casualties placed in the category of a "reportable" disease. The proposal would have to be taken to Dr. Richard Hoffman and the Colorado Board of Health; then to a public forum; then to a vote. Other informal approaches mentioned included: asking Peter Vellman to bring this matter to the attention of Emergency Department physicians in the State; Holly could make an announcement in the Colorado Trauma Bulletin so that other trauma centers would communicate with us about their lightning cases so that our data base would increase.

- 7 Peggy Gustafson said that she will send a follow-up letter to the participants of the Lightning Safety Seminar given in August by Rich Kithil. The questionnaire would ask if their approach to these matters had changed as a result of their attending the Seminar. The feedback obtained in August was positive.
- 8 Anton Seimon spoke about the lightning detection network. He said that there are two parameters that should be analyzed when examining the network information: a) location of a flash. Anton stated that information has improved to where there may be a mean error of 0.5 miles; b) detection efficiency. He believes the efficiency

is about 70% of actual flashes, and with storms of low flashing rates, the examiner is more likely to find the flash involved. He also discussed positive flash which is often a long high current flash, as opposed to 'flickering' negative flashes. Anton will give a 15 minute slide presentation during our next meeting.

- 9 Bob Glancy mentioned that everytime he went to a Rockies baseball game, it rained. Bob asked the group, has there ever been a lightning injury during a professional ball game? How safe are the spectators in the stadium which has early streamer lightning terminals? Phil Yarnell knows the people who constructed the stadium and said he will try to arrange a field trip for LDC. Two articles that speak to lightning injuries on the playing field are:
 - a. Cherington, Martorano, Siebuhr, Steig, Yarnell - Childhood lighting injuries on the playing field. J Emerg Med 1994 p 39-41.
 - b. Maggied - Lightning's incredible attack on American football in 1970. Ohio State Med J 1973, p603-6.
- 10 George Rossie reported that he spoke with Steve Marshburn, President of Lightning Strike and Electric Shock Victims International, about establishing a support group in Denver. He will pursue this project further and report back at our next meeting. George brought an article that pointed out that attacks of asthma have been precipitated by thunderstorms. Reports in the British Medical Journal suggest wind gusts scatter pollen over a wide area.
- 11 Ken Langford's photography is currently on display at the Fiske Auditorium. His photographs will be on display at NCAR in Boulder during the month of November.
- 12 Next meeting: Friday, November 8, 1996 at 11:30 am in Main Auditorium of St. Anthony Central Hospital. We have returned to our usual schedule of meeting the second Friday of each month.

Respectfully submitted,

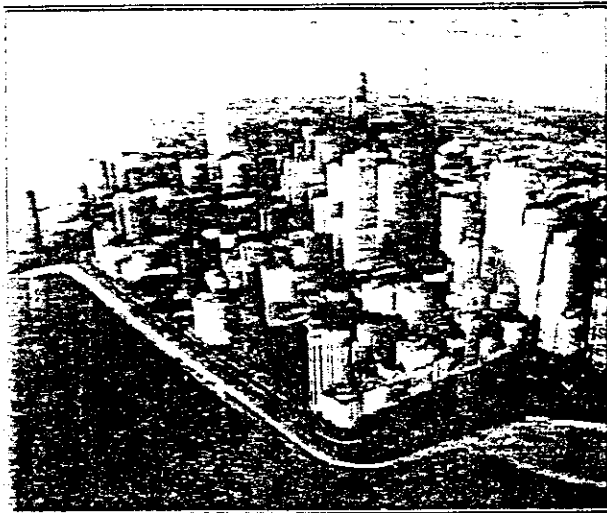


Michael Cherington, MD
Chair, LDC

The Society
for Physical Regulation

in

Biology and Medicine



15th Annual Meeting

October 9-12, 1988

Midland Hotel

Chicago, Illinois

LIGHTNING INJURIES

Moderator: *M. A. Cooper*, Univ. of Illinois, Chicago, IL.

- 13:15-13:30 Lightning Injuries and Fatalities in the Rocky Mountains
M Cherington and PR Yarnell, Provenant St. Anthony Hospital, Denver, CO.
- 13:30-13:45 Lightning Safety in the USA: A Case of Benign Neglect
R Kithil, National Lightning Safety Institute, Louisville, CO.
- 13:45-14:00 Lightning Stroke and Neuropsychological Impairment: Cases and Questions
HJ ten Duis, AH van Zomeren, M Sipma, and JM Mindernoud, Univ. Hospital, Groningen, Sweden.
- 14:00-14:15 Review of a Lightning Injury Investigation
ML Foley, Technical Consultants Group, Denver, CO.
- 14:15-14:30 Proactive Measures for the Reduction of Lightning Deaths and Injuries
RL Hoile, RE Lopez and KW Howard, National Severe Storms Laboratory, NOAA, Norman, OK
J Vavrek, Spohn School Weather Station, Hammond, IN
J Allsopp, National Weather Service, NOAA, Romeoville, IL.
- 14:30-14:45 Recent Trends in the Number of Lightning Deaths and Injuries in the United States
RE Lopez and RL Hoile, NOAA, Norman, OK
RM Passi, Univ. of Southern Mississippi, MS.
- 14:45-15:00 Psychological Sequelae of Lightning Injury
M Primeau, Finch Univ. of Health Sciences/ The Chicago Med. School, North Chicago, IL
GH Engelstatter, Carolina Psychological Health Services, Jacksonville, NC
MA Cooper, Univ. of Illinois, Chicago, IL.
- 15:00-15:30 Coffee Break and Poster Session