LIGHTNING DATA CENTER
ST. ANTHONY HOSPITAL
NOVEMBER 14, 2003
MINUTES

Quote of the Month:

"The completion of the draft sequence of the human genome in 2001 was one of the great milestones of science. However, this event is important more for what it has begun rather than for what it has finished."

JS Mattick, 2003 MJA

1. The meeting began at 11:30 am and adjourned at 1:30 pm.

2. Members present: Barron, Bradley, Burrows, Cherington, Collier, Elson, Foley, Gift, Glancy, Keen, Kummerfeldt M, Kummerfeldt P, Langford, Mains, McDonough, Olsen, Olson, Paton, Russon, Sanders, Schoessow, Stewart, Wachtel, Wallace, Wells.

3. I brought the following articles (abstracted in part here):

a. Morton RL, Jain S, Eid NS. Pulmonary sequelae of pediatric lightning injury. Pediatric Research 2003;53:Suppl # 3262;576A.

"A previously healthy 14 year old female was struck by lightning. She was found in full cardiac arrest at the scene. She required mechanical ventilation and developed lung infiltrates bilaterally. Lung biopsy performed 1 year after injury revealed mild interstitial fibrosis. A previously healthy 9 year old male suffered a lightning strike on the head and was found in cardiopulmonary arrest. CT chest showed diffuse reticulo-interstitial pattern with pulmonary fibrosis. He was eventually referred for lung transplantation. Lightning may cause blunt trauma by creating a cylindrical shock wave of as much as 20 atmospheres. Both of the above cases developed cases developed pneumomediastinum suggesting blast injury to the lung was most likely the cause of barotraumas burn injuries to the underlying lung tissue may have played a role. Burn injury to the lung due to lightning may be uncommon because the large cross-sectional area provides lower resistance to current."

b. Lindquist LA, Eimer M, Butter J. (Comment by Cherington M, Yarnell PR).
A shocking case: transient paralysis with aphasia caused by electrical injury. Resident & Staff Physician 2003;49:43-44.

4. Leland Anderson sent an email with his thoughts about the October minutes. Leland's eloquence and wisdom are always welcome. He stated that C.B. Moore's recommendations for lightning protection systems were excellent. He commented on Linda Cooper's email about repeated lightning strikes, and on ball lightning. He believes we do not have sufficient information to understand these phenomena. He pointed out that witnesses to ball lightning might have enough fear to interfere with the strength of their testimony. Leland wrote that if he "saw BL roaming near me I'd throw things at it, hopefully diverting it and learning something about its density, force, etc." He sends his wishes for a Happy Thanksgiving.

Following up on Leland's letter, Ken Langford asks of our members the question: "What would you do if you saw ball lightning?" Answers may be sent to Ken and he will let us know what he learns.

Greg Stewart pointed out that ball lightning has been reported on several occasions in submarines when the crew would switch from battery pack to another battery pack. This is one of the few scenarios where ball lightning occurs independent of associated lightning storms.

5. Paul Schoessow brought the following article: Dwyer JR. A fundamental limit on electric fields in air. Geophy Res Let 2003;30. (Abstracted in part here):

"...enormous bursts of energetic radiation can be produced in strong electric fields in air. These bursts generate so many runaway electrons that the electric field is very rapidly discharged, resulting in a fundamental upper limit on the electric field strength achievable in air. This limit has important implications for the electrification of thunderstorms and the production lightning."

6. Ken Langford brought the following article to our attention: Graneau P, Graneau N, Hathaway G. Evidence of thunder being a chemical explosion. J Plasma Physics 2003;69:187-197.

7. Sheryl Olson reported briefly on the ICOLSE meeting she attended in England in September 2003. At that meeting Sheryl presented a case report of a lightning-strike patient who had both keraunoparalysis and Lichtenberg patterns on the skin. Sheryl made an interesting observation that when ECG pads with gel were applied to the patient's skin, ferning patterns appeared. Rick Russon suggested an explanation: a lightning charge (free space charge) was present in the skin when the electrode was applied.

8. Sheryl introduced the parents of a man who was killed by lightning in June of this year while mountain climbing in Wyoming. The parents were kind enough to tell the group about the details of the lightning tragedy. Their son was climbing on a mountain with ropes at an elevation of about 12,000 feet during afternoon hours when lightning storms arrived. He and a climbing friend sought shelter in a cave during the thunderstorm. After the storm subsided, they waited in the cave for about one hour. When they assumed it was safe to leave, they left the cave to climb down. Tragically, he was struck by lightning. Although he fell down the side of the mountain, he died suddenly from the lightning strike and not the fall. He was an experienced, careful mountain climber.

9. Mike Foley's valuable presentation was entitled: The Lightning Casualties of the Horrific Colorado Summer of 2003. Mike reported data for the year 2003 in Colorado. There were 6 lightning-related fatalities (4 men; 2 women) and 5 known injuries (3 men and 2 women). The individuals were engaged in following activities: fishing, hiking, horseback riding, and motor cycling.

10. These minutes do not represent official positions of LDC members. The minutes reflect the comments of members present.

11. Next meeting will be at 11:30 am on Friday, December 12, 2003 in the Main

Auditorium of St. Anthony Central Hospital. Scheduled guest speaker: Maury Miller of the Office of the Larimer Coroner/Medical Examiner.

Respectfully submitted,

Michael Cherington, MD