

Feb. 12, 1999 Minutes **Lightning Data Center** Centura Health-St. Anthony Hospital

Quote of the Month:

“You sulph’rous and thought-executing fires,
Vaunt-couriers of oak-cleaving thunderbolts,
Singe my white head. And thou, all-shaking thunder
Strike flat the thick rotundity o’ th’ world.”

William Shakespeare -- King Lear

1. Meeting began at 11:30 am and adjourned at 1:30 pm.
2. Members present: Breed, Cherington, Clark, Collier, Fischer, Foley, Hodge, Kamin, Kithil, Lines, Olson, Simmons, Toler, Yarnell.
3. LDC is 7 years old!!!. Our first meeting was held in February 1992. Those present at our ‘anniversary’ meeting today were captured on a photograph that we shall keep in our archives.

I brought a copy of the Centura “Extra” Newsletter to show that the borders of this newsletter are photographs of lightning!!

4. I distributed the following articles from the literature (parts are abstracted here).

I believe that our members may be interested in this first article from the cardiology literature because of the terminology that, on first glance, might lead one to believe the article refers to lightning.

a. Credner SC, Klingenheben T, Mauss O, et al. Electrical storm in patients with transvenous implantable cardioverter-defibrillators *J Am Coll Cardiol* 1998;32:1909-15.

“Definition of electrical storm. At present, there is no commonly agreed definition of electrical storm. It represents a serious but treatable clinical syndrome of recurrent severe ventricular arrhythmias most commonly observed in patients with advanced structural heart disease. A useful working definition has been recently proposed in two prospective studies where electrical storm was defined as recurrent ventricular tachycardia or ventricular fibrillation occurring more than two times in a 24-h period. Moreover, it usually required electrical cardioversion or defibrillation.”

b. Dinakaran S, Desai SP, Elsom DM. Telephone-mediated lightning injury causing cataract. *Injury* 1998;19:645-6.

“A healthy 9 year old boy was injured by a lightning strike when he was using a telephone at his home during a thunderstorm in June 1992. The telephone was blown off the wall and the junction box had melted during the incident...He was referred..in February 1993 with a history of blurring of vision...The right eye had tiny snowflake like opacities localised to the posterior sub capsular region..He had an uncomplicated extra capsular cataract extraction..in January 1994.”

“In the United Kingdom 198 people were injured by lightning in 1993 and 1995. Over half of those struck were indoors..Lightning can traverse the telephone user in

two ways. Firstly the current can be generated in the communication line..The second method is by a phenomenon called 'earth potential rise or EPR..A lightning current into earth near a telephone user will cause a rise in potential. However, the telephone is held at zero potential by its connection to a remote earth."

 This next article deals with a subject that we have discussed several times in the past. Lightning victims often present as an "out-of-hospital cardiac arrest." The following article reinforces much that is already in the literature about the prognosis.

c. Soo LH, Gray D, Young T, Huff N Skene A, Hampton. Resuscitation from out-of-hospital cardiac arrest: is survival dependent on who is available at the scene? Heart 1999;81:47-52.

"Survival from out-of-hospital cardiac arrest in Nottingham remains extremely poor despite the introduction of paramedics. Our overall rate of survival to hospital discharge of 6.1% for all cardiac arrhythmias and 11.7% for ventricular fibrillation is similar to other ambulance services in the United Kingdom, but much less than that of 28.9% in Seattle, USA. Paramedic skills of ambulance staff...increase the likelihood of successful resuscitation, but from the perspective of accident and emergency department based research, paramedics, did not have a major impact on survival, as Guly has reported in Edinburgh...Resuscitation by a paramedic assisted by a medical practitioner offers a patient the best chances of surviving the event."

5. I brought a letter addressed to my son, David, from Mr. John T. Conway, Chairman of the Defense Nuclear Facilities Safety Board. David is the Legislative Director for Congressman Joe Knollenberg. Mr. Conway indicated an interest in consulting with experts on lightning protection at critical facilities. We discussed this request suggested that I contact Mr. Conway and refer him to those of our members who might be helpful.
6. Barry Kamin suggested that LDC consider taking active steps in new directions. He specifically referred to the following areas: 1) Collaborative research, taking advantage of the multidisciplines and talent represented in LDC; 2) expand our educational efforts, including joint efforts with the Trauma Department of our Level 1 Hospital; 3) seek funding and grants with help of the expertise that exists at Centura Health.

Barry will bring formal recommendations to us and the Administrative Committee within a month. Those LDC members who want to become active in these new projects are encouraged to do so.

We all agreed, however, we shall maintain our role as a "multidisciplinary think tank" and will continue to have our monthly meetings. We shall keep our format that has been successful in so many ways.

7. I introduced Gene Lines, our new member. Gene is part owner of "The Power Specialists." His company represents many firms that provide products related to providing devices that improve power quality and reliability. Gene was referred to us by Nicolas Floret of Dimensions, Co. of France. Gene and Nicolas are currently working on a project regarding the installation of safe system at a school field in Colorado.

Gene is also one of the founders of the Alpine Rescue Team and has had experiences with lightning accidents. We are delighted that he has joined LDC.

8. Mike Foley reported he has been working to registered our web site with search engines (Yahoo, Altavista, etc).
9. Rich Kithil announced that NLSI will be holding a 2-day certified class on Feb 25 and 26. Rich brought NLSI videotapes on Lightning Safety. He also brought a chapter outline of his Lightning Safety Handbook. This is a major undertaking that he estimates will be about 700 pages.

Rich commented on a winter lightning strike at Snowmass ski resort. Gene Lines brought a Denver Post (January 31, 1999) article pertaining to the same event. The manager of the ski resort said "a handheld lightning strike indicator detected several strikes in the area." Several chairlifts were closed. Weather people in the area they did not recall any previous January thunderstorms.

10. Rich Collier commented on a "resonance" effect that occurs when lightning strikes a tall structure of 400 feet or more. The resonance effects are characterized by frequencies that are amplified and can be damaging.
11. Sheryl Olson brought copies of slides and prints that clearly demonstrate the "fern" skin pattern of her patient who was struck by lightning.
12. Phil Yarnell reported on two patients that have neurological problems related to lightning or electrical trauma. The first is a farmer who suffered an electrical shock from machinery. He was subsequently diagnosed as having multiple sclerosis. The proceeding discussion dealt with the difficulty of establishing a "cause and effect" or aggravating factor of electrical trauma in many similar cases. The second was a case of Tourette's syndrome that was worse after the child was struck by lightning. We now have or are aware of 4 patients with an involuntary movement disorder related, perhaps, with lightning. Phil and I commented that since lightning incidents involve a small number of people (usually one or two), most physicians' experiences with various neurologic complications of lightning are small and reports are anecdotal.
13. These minutes reflect the comments of the members present and do not represent official positions of the LDC.
14. Next meeting: Friday, March 12, 1999 at 11:30 am in the Main Auditorium of St. Anthony Central Hospital.

Respectfully submitted,

Michael Cherington, MD
Chair, LDC Scientific Committee