

Jan. 8, 1999 Minutes Lightning Data Center Centura Health St. Anthony Central

Quote of the Month:

"He..was graduated by the Yale Medical School with a degree and a specialization in comparative anatomy in February 1863...The Union Army..was eager to accept someone as apparently competent as..William Chester Minor of Yale...Some of his old autopsy reports survive...One report is more interesting: It was written in September 1866..and concerns a recruit..who was struck by lightning, while he was on sentry duty imprudently standing under a poplar tree during a thunderstorm. He was in bad shape. ' The left side of his cap open...facing of the metal button torn off..hair of his left temple singed and burned...stocking and right boot torn open."

Simon Winchester in The Professor and the Madman, 1998,
HarperCollins Publishers

1. Meeting began at 11:30 am and adjourned at 1:15 pm.
2. Members present: Breed, Cherington, Glancy, Gray, Hodanish, Hodge, Kamin, Kithil, Simmons, Toler, Yarnell.
3. I brought the following articles from the literature (parts abstracted here):

a.) Cherington M, Breed DW, Yarnell PR, Smith WE. Lightning injuries during snowy conditions. *Brit J Sports Med* 1998;32:333-5.

"Skiers and other snow sports enthusiasts can become lightning casualties. Two such accidents are reported, one being fatal. There are fewer warning signals of impending lightning strikes in winter-like conditions. However, outdoor activists should be aware of at least two suspicious clues: the appearance of convective clouds, and the presence of graupel (snow pellets) during precipitation."

Steve Hodanish and Dan Breed discussed convective clouds during ski season. They both agreed that there are more lightning convective clouds in the skiing months of March through May than November through January.

b.) Ten Dius, HJ. Lightning strikes: danger overhead. *Brit J Sports Med* 1998; 32:276-7.

"It is no longer the farmer, but the sporter and the hiker who are at risk during their recreational and explorative activities...What kind of injuries can be expected when a lightning discharge reaches the human body? The electricity can spread over the skin or it can enter the body...The predominant route taken by the current is influenced by many factors, such as applied voltage, resistance of the skin, etc... Cardiac arrest (asystole) and apnoea are the most commonly seen internal disturbances..The heart often resumes its rhythm after a few minutes. The accompanying respiratory arrest is, however, often more long lasting, eventually leading to secondary arrest (fibrillation) due to hypoxia."

c.) Lick SC, Sankar AB, Boor PJ. Heart donation after lightning strike. *J Heart Lung Transplant* 1998;17:1034-5

"The donor was a healthy 22 year old man who was riding a lawnmower at the onset of an electrical storm. Seconds after a lightning strike, he was found on the ground pulseless and apneic...Emergency medical services arrived 10 minutes later and found him pulseless and apneic with a slow junctional rhythm...The patient remained unresponsive...Five days after the injury, the family consented to organ donation..The recipient, a 35 year old man with idiopathic cardiomyopathy...has had an entirely uneventful 3-year postoperative course."

"...Rather than dying from the raw power of the lightning bolt, the victim receives a direct current countershock, depolarizing the entire heart, resulting in a forceful, single contraction, followed by cardiac standstill. After several seconds, heart contraction resumes, but the medullary respiratory center is frequently stopped for a longer duration, and therefore the cause of death is usually respiratory failure. It is the apneic period that appears to be the critical factor in death from a lightning strike."

4. Rich Kithil brought a book that Bryan Bennett sent to him a book by George Freer entitled: Weather Proverbs.

Rich pointed out that there are over 500 citations on lightning injuries on Medline on the internet and that several articles were written by members of LDC.

Rich announced that he has commenced work on a book: Lightning Safety: Theory and Practice. He stated that he has gathered an international group of researchers, and he plans a publication date in the year 2000.

5. Barry Kamin said he will continue to work with Mike Foley on our Web Page. Barry and Rich suggested we add: 1) an "Interesting Case" page to our Web Page; and 2) a reference list of articles written by our members.

Barry told us that Centura's Trauma Department is engaged on an outreach educational program. He suggests that lightning safety issues be added to the program. I passed this recommendation on to Dr. Thomas Wachtel, Chief of Trauma Department after the meeting.

6. Steve Hodanish is a new LDC member. He is Senior National Weather Service Meteorologist in Pueblo, CO. He moved here from Florida.
7. Warren Simmons said that additional lightning safety devices are being planned for the shelters at a local golf course. Lightning rods with connecting cables would be built on two sides of the small building. "Shelters" on some courses currently are equipped with a single lightning rod on the top of the shed. Warren warned that these small structures with a single rod may not be as safe as many believe.
6. Bryan Gray is another new LDC member. Bryan works for a company, Skyview, that provides weather forecasting to golf courses and other clients. Bryan, Steve, Warren, Rich, and I discussed several problems confronting golfers. I mentioned that many, if not most, of lightning-related golf casualties involve golfers who stood by an isolated tree during a storm. Steve stated that sprinkles of rain from an overhead anvil cloud is often an ominous sign of impending lightning. Rich pointed out that metallic sprinkler systems are underground in many golf courses. This may be responsible for ground current and step-voltage problems to golfers.

7. These minutes reflect the comments of the members present and do not represent positions of LDC.
8. Next meeting: Friday, February 12, 1999 at 11:30 am in the Main Auditorium of Centura Health St. Anthony Central Hospital.

Respectfully submitted,

Michael Cherington, MD
Chair, Scientific Committee