

LIGHTNING DATA CENTER MINUTES

January 13, 2017
St. Anthony Hospital, Lakewood, CO

“Mirth is like a flash of lightning, that breaks through a gloom of clouds, and glitters for a moment; cheerfulness keeps up a kind of daylight in the mind, and fills it with a steady and perpetual serenity.” ~Joseph Addison

1. Meeting began at 11:55 AM and adjourned at 1:15 PM. Members Present: Wachtel, Yarnell, Nibbe, Gift, Cui-Gift, Stewart, Wells. Stewart moderated.
2. Robert Gift inquired about incidents of thundersnow. No recent events were cited. Explanation of phenomenon at NWS link:
<http://www.nssl.noaa.gov/education/svrwx101/winter/faq/>
3. Dr. Phil Yarnell presented a case involving several patients with a common thread: delayed symptom onset. The “perplexing” case was initiated by a lightning strike near a school building during operating hours. Specifics were withheld for confidentiality purposes. There was damage to electrical circuits. While the event was “dramatic and frightening,” no emergency services were needed. Subsequently, four members of the staff reported suffering long-term health or neurological consequences. One expressed emotional distress following the strike. A second patient had full recollection of the event, though in retrospect felt as though she had been confused, and based on observations by a family doctor, exhibited concussive symptoms, complicated by a medical history including fibromyalgia. A third person reported insidious onset of nonspecific symptoms that emerged 6 weeks post-event. A fourth person came forward 18 months post-strike, with chronic respiratory complaints and a general drop in function.

None of the patients were next to windows or in proximity to wired appliances. None of the children were affected. The four reported no immediate sequelae or sought medical assistance at the time. It was postulated that they may have sustained concussion or suffered from an unspecified electromagnetic mechanism of injury. Two were referred for neuro-psych testing which revealed a non-specific pattern of mild slowness (or processing) attributed to lightning-related sequelae.

Questions arise in the scenario where patients experience a delayed onset of persistent symptoms in the absence of immediate neurologic signs/symptoms of injury. Howard Wachtel was questioned about the validity of an electromagnetic mechanism of injury. He cited the example in Colorado where a golfer was killed (cardiac failure/v-fib) by what was considered “induced current from the magnetic field” from lightning strike. However, this was an immediate effect, not delayed. Wachtel considered the delayed effect evidence that electromagnetic influence was likely not a contributing factor.

Yarnell agreed, adding that delayed symptom onset was most often associated with cases where an immediate affect was observed. There was a recent case where a man was exposed to nearby lightning and his wife reports that his short term memory is impaired, though MRI showed no brain damage and no immediate sequelae. If electromagnetic influence was a cause, Yarnell reiterated that complaints would have been reported by the patient immediately.

A psychiatrist's analysis implied that this was likely a PTSD type of phenomenon, where emotional/psychological sequelae developed. From an article entitled "Behavioral Consequences of Lightning and Electrical Injury," the author noted that many of the symptoms manifest post-concussion and are part of a PTSD syndrome. Yarnell said that in his experience, patients who suffer from these symptoms also reported a definite electrical event at the time of the incident and that delayed onset patients may be reporting psychologically-influenced symptoms. "There are many unexplained phenomenon/sequelae in some long-term lightning strike survivors that make it difficult to be entirely definitive here." It's hard to know what exactly is attributed to lightning versus other factors. There could be a cascade effect, where an initial incident leads to cognitive problems that subsequently lead to other emotional issues and so on. Wachtel suggested that lawyers could enter the equation and influence the patient's position. Yarnell agreed that legal counsel, as sworn advocates, could be influential.

Yarnell went on to cite a Texas case in which a woman was found to have "malingering complaints," where statements made in her neuropsychological evaluation showed inaccuracies and "intentional" inconsistencies. Responses were deemed invalid and suggested an ulterior motive. Dr. Nibbe, when asked about PTSD in military personnel, said that emotional issues can build over time, contributing to psychological problems. Karen Wells said she sees people who come to the library looking for books on physical exams in occupational injury and requirements for obtaining compensation.

Yarnell agreed this is a huge issue in occupational medicine. So, the neurobehavioral effects of lightning, of concussion, of PTSD "...have a common conundrum, they all overlap... [and often result in] an adversarial situation." Many patients have symptoms not well understood physiologically that can lead to a progressive deterioration of function and are classified as psychological. Also, there becomes a conflict of medical interest when downplaying symptoms is incentivized by an employer, whether it be a coach or commander.

4. Psychological effects and alternative therapies were discussed. Nibbe cited the survivor who presented her case at a recent meeting who said she used a device to measure meridian function (set of pathways in the body along which vital energy is said to flow). Alternative medicine (or "integrative") includes chiropractic, acupuncture, hypnotism and aroma therapy. Wells said they call it "Healing Bridge"

at Lutheran hospital. The placebo effect was suggested as playing a role in certain alternative treatments.

Stewart asked if cumulative positive outcomes opened the door to alternative treatments that may be viewed suspiciously through a western lens. Yarnell explained that acupuncture gained great credence because of James Reston, a famous writer for the New York Times who had an attack of acute appendicitis in China. They operated on him under acupuncture anesthesia. The successful outcome sparked a renewed interest in America.

Nibbe cited another example of early acupuncture inroads to western medicine. The head of cardiology at the University of Kansas, Dr. E. Grey Dimond, assembled a group of physicians to look at the range of Chinese remedies, from acupuncture to herbal. One member of the team, Dr. Bernie Lown from Harvard (original developer of the DC defibrillator in 1961), had a history of back injury, with regular visits to a chiropractor. The tedious 70's flight to Beijing (over 20 hours) was brutal on his back and "...by the time he got to the hotel he was a wreck." He called down to the desk to request a western-trained physician for medical attention. "Up came this guy and everything he did made it worse." Still in bed the next day, Lown again called the desk: "Maybe you better send up someone [with expertise in] Chinese medicine." The fellow arrived and announced that he would perform acupuncture. Lown had no confidence at all while he was worked on for about 45 minutes. "I couldn't see how this was doing anything for me." After the practitioner departed, Lown got right up, feeling great. The remaining ten days were fine. Lown returned to Boston and didn't have to visit a chiropractor for two years.

Wells referred to the Natural Medicines database. It is evidence-based and looks at various holistic medicines, with rankings for outcomes. Some are legitimate, some not. (Link: <https://naturalmedicines.therapeuticresearch.com>). Herbal-based remedies are of increasing interest to medical researchers. Yarnell said that lightning strike survivors will look to unconventional treatments because "...medicine [often] doesn't have a lot of good answers for chronic problems." It was thought that to be treated in-hospital, a patient must specifically request an acupuncturist and pay the provider directly.

5. Yarnell relayed an account of a patient with chronic back pain who sought treatment, oddly with an ENT physician, who had a reputation for nearly miraculous back pain cures. The patient arrived in the waiting area to find other patients with prongs up each of their nostrils. The exam was cursory, followed by the insertion of two solution-laden prongs, one in each nostril. Suddenly, the patient (a genius playwright) started cracking corny jokes and exploded with laughter. After being instructed to bide a short while in the waiting room with prongs in, the practitioner eventually removed them and announced the treatment a success. The patient walked out, feeling completely well. When it was time for a repeat visit, the patient was informed that the doctor's office had been shut down. He had been using a solution of cocaine. The

physician had developed an excellent reputation in treating chronic back pain, widely sharing his technique with other physicians, but the law had other ideas.

Discussion followed on the subject of pain treatment, the use of heroin and the epidemic of opioid addiction. Yarnell speculated that the promotion of Oxycontin as a “non-addictive narcotic” by drug companies led to many patients switching to street heroin when their insurance ran out. The pharmaceutical companies were more than happy to be suppliers in the war on pain. “Nurses were trained to think of pain as the fifth vital sign: breathing, temperature, pulse, blood pressure and PAIN.” The pharma companies convinced doctors that oxycontin/percocet was a benign drug. Nibbe suggested the FDA didn’t recognize the extent of the addictive qualities and were endorsing these regimens to control pain. Heroin was initially thought of as non-addictive.

6. Yarnell commented that Pope Leo XIII would enjoy a “Vin Mariani” (ground coca leaves with red Bordeaux wine). The “tonic wine” was deemed medicinal. “Freud prescribed cocaine for morphine addiction and alcoholism. He became a cocaine addict himself, though he was able to break the habit.” William Halsted on the other hand, one of the four founding physicians of Johns Hopkins Hospital, remained a cocaine and morphine addict. He was even sent off by ship to kick the habit, but stashed morphine in his trunk. Yarnell; “In Indonesia and Singapore, drug trafficking is punishable by death.”
7. Wachtel commented on a procedural issue at LDC meetings. It was suggested, with general support from those present, that guest speakers limit their topic and/or duration so as to promote more efficient use of allotted meeting time.
8. Stewart shared last year’s findings from NASA of “earth’s new lightning capitol.” A study using observations from the Lightning Imaging Sensor (LIS) onboard the International Space Station has revealed Lake Maracaibo in Venezuela to be the place with more lightning activity than any other single location on earth. “Researchers had previously identified Africa’s Congo Basin...” as the highest ranked. “Developed at Marshall [Space Flight Center], LIS detects the distribution and variability of total lightning—cloud-to-cloud, intra-cloud and cloud-to-ground— that occurs in tropical regions of the globe. LIS uses a specialized, high-speed imaging system to look for changes in the optical output caused by lightning in the tops of clouds.” For additional details: “Earth’s New Lightning Capitol Revealed”. Link: [Earth's New Lightning Ca#8B672E](#)

Stewart cited a related scientific paper entitled “Total Lightning Flash Detection From Space” (Author: Kleber Naccarato, Earth Science System Center, for the 2016 International Lightning Detection Conference, courtesy of Vaisala archive). Here, the LIS is described as: “...measuring the radiation of light, which is emitted by the hot lightning channel and then propagates throughout the atmosphere and clouds...” (Link to paper: <http://www.vaisala.com/Vaisala Documents/Scientific papers/2016 ILDC ILMC/Kleber Naccarato et al. Total Lightning Flash Detection from Space.pdf>)

9. Stewart reviewed UK's unusually high flash rates last fall, where the Midlands were "...hammered by almost 20,000 lightning strikes...with enough power to boil 90 million cups of tea." Equivalency claim was undocumented. "A total of 19,319 strikes were recorded in 14 hours...according to Met Office lightning detection data." This is more than six times the average. Link: <http://www.mirror.co.uk/news/uk-news/uk-weather-20000-lightning-strikes-8835107> Injuries to 20 people, in numerous circumstances, included heart attack, eye injuries, burns and shock. Link: <http://www.dailymail.co.uk/news/article-191846/20-hurt-lightning-strikes.html>
10. Questions, comments, notification of errors, and critiques of these minutes are welcome. Please forward those to Steve Clark at: sclarktoto@gmail.com. Please keep your communications professional and respectful. Communications will be forwarded to the appropriate author(s) of the minutes and addressed accordingly.
11. LDC Disclaimer: These minutes do not represent official positions of the LDC or its members. They simply reflect the comments made at the meeting. Furthermore, the LDC does not implicitly or explicitly recommend or endorse any product or service. Any product or service presented in these minutes is done so for purposes of discussion and analysis. The merit (or lack thereof) is open for the consideration and review by the entire membership.
12. Next meeting: Friday, February 10, 2017 at 11:45 AM at St. Anthony Hospital West in Conference Rooms E & F.

Respectfully Submitted.

Gregory W. Stewart, LDC Administrative Committee