

ATLANTA POST-POLIO ASSOCIATION

Dr. Dale C. Strasser, Chair of the Department of Rehabilitation Medicine at Emory University School of Medicine, was APPA's guest speaker for its January 10, 2009 meeting. Dr. Strasser has been a long-time supporting member of APPA and has made many informative presentations in past years.

The title of his presentation was "A historical Perspective on Polio." Dr. Strasser announced that his presentation is part of what he has prepared for the 2009 International Polio Convention to be held in Warm Springs, GA, in April of this year. Dr. Strasser recommended Dr. David M. Oshinsky's book entitled, "Polio: An American Story." In his opinion Dr. Oshinsky (who will also be a speaker in Warm Springs in April), is a wonderful historian and author. He encouraged APPA members to read this book for more historical details.

Although there is evidence that Polio was present in ancient Rome and in Egyptian paintings, Polio appeared around the world mostly in the late 1800's. In Northern Europe outbreaks of this disease progressed in intensity in the late 1800's, with major outbreaks beginning in 1915, followed by outbreaks in the 20's, 30's, 40's and 50's. These outbreaks, which eventually gained the status of epidemics, produced interesting dynamics to the American approach to this disease, which became most deadly in the US during the same time periods.

Trends were identified in confronting Polio epidemics, such as there are 30 times more Polio cases in August than in February. Also, human immunological systems get into overdrive causing auto-immune diseases.

Note: When Europeans came to the Western Hemisphere they brought many diseases that adversely impacted native Americans, with a death (mortality) rate estimated to be as high as 95%!

Various childhood conditions provided some immunity to serious diseases, such as cow pox providing immunity to small pox. Some diseases even tuned human systems as a result. Polio, unlike other diseases, does not have an animal carrier, nor is there a similar disease which infects humans with animal contact which would provide some form of immune reaction. Although only 1-2% of the people exposed to the Polio virus got the

paralytic form, the remaining 98+% may have only had the symptoms of a bad cold, with no other side effects. However, there is research now underway to explore the possibility that certain diseases, such as narcolepsy and chronic fatigue syndrome, may be the after effects of polio in some of those infected by the disease years earlier.

Among the infection trends observed, Polio was mostly related to the patient's age, with children most prone to be affected. For example, for six year-old children only 1 in 100 suffered paralysis. For seven year-old children the rate was 5 in 100.

President Roosevelt contracted Polio in 1921 at the age of 39. He came from a wealthy family background and was isolated as a child from the summer epidemics, as well as most childhood diseases. However, when he went away to college he contracted many of the normal viral infections in this unprotected environment. His immune system was not as attuned to resist these diseases as other children. As Secretary of the Navy in Washington, D.C., Roosevelt visited a Boy Scouts camp as a vacation break on his way from DC to his family's summer home at Campobello, Me. At that time he was under a lot of pressure addressing Congressional investigators regarding some military problems, and having participated as the Vice Presidential candidate for 1920. When he reached Campobello about ten days later, he exercised excessively with his children. Within a day he became virulently ill and came down with paralytic Polio. FDR heard through a friend about the curative powers of the natural warm springs at a small town in SW Georgia, and soon visited it. He became enthralled with the effects of the springs and ultimately spent most of his inheritance in order to purchase the springs and the resort around it in order to help others improve, as he felt he had, from the blessings of this place. His sponsorship of Warm Springs contributed greatly to its role in dealing with this dreaded disease. While dealing with the after effects of Polio, he helped establish the National Foundation for Infantile Paralysis, which later became the March of Dimes.

Dr. Strasser reported that Roosevelt managed to keep the fact that he had been crippled because of Polio from the public. Even in his third term as president, people were totally unaware that he was disabled. He pointed out that only two photographs of Roosevelt in a wheelchair are known to exist.

Dr. Strasser indicated that the campaign for eliminating Polio epidemics in the U.S. was groundbreaking in developing a process for fundraising to

combat any disease, and creating public awareness. The ultimate goal, of course, was the eradication of this disease through research and to provide proper therapy to survivors. Roosevelt began organizing people to act on the elimination of this disease. It is believed that this great effort resulted in resurrecting his political career.

With the assistance of Basil O'Connor, the first major fundraising effort transpired. Mr. O'Connor was a Madison Avenue professional who organized community efforts to raise awareness, social consciousness and generate funds to protect Americans from Polio. This was years before the U.S. Government became an active participant in this campaign. O'Connor was the first person to come up with the idea of a poster child to sell this important message to the public. These posters were placed in neighborhoods to organize support. This effort led to the development of the March of Dimes. Dr. Strasser commented that rather than get a lot of dollars from a few people, their focus was to gain a wide-base of support throughout big and small cities of America by asking everyone to donate dimes. The effort proved to be successful in getting the participation of the whole nation in addressing this disease that either killed or maimed young children and adults alike. It was truly a successful effort that possibly saved some from getting this disease. The effects of this disease were disproportional as it hit the middle class population. However, polio was not as life threatening a disease as the marketing promoted it to be, because at the same time as the polio epidemics were occurring, three times as many children died from cancer and about ten times as many died from a variety of accidents. (Refer to: [http://www.feri.org/archives/polio/.](http://www.feri.org/archives/polio/))

Dr. Strasser provided a five-minute refresher course on contemporary times and values concerning Objective Evidence Based Medicine. The early treatment studies, he explained, were based on Randomized Clinical Trials. In RCTs one-half of the participants get the treatment, and the remaining do not. Also, the doctors did not know which patients received the vaccine and which received the placebo. The objective was to eliminate any bias by the physicians conducting the studies. It was believed that not knowing whether the patient they were examining had the treatment or not would lead to an unbiased assessment. It was not a perfect system; however, it was the only approach they had early on in studying Polio.

Eventually, the OEBM was the adopted format for conducting research studies that truly eliminated physician bias. This occurred near the time that

research projects became funded by the U.S. Government-National Institution of Health (NIH) and other governmental agencies. Proposals were made and the funding was finally isolated from these agencies. Today, private foundations are also involved, such as the Ford Foundation and the Gates Foundation. To some degree Pharmaceutical and Biotech companies have started conducting their own research into this and other associated diseases.

The examination of the early-to-mid 20th century studies of Polio led to the suspicion by virus physicians that a virus was involved. They also concluded that three distinct types of Polio were involved. Another conclusion reached was that the virus is transmitted by contact with human waste, garbage and other such sources. In a study conducted by the Rockefeller Institute using monkeys, it was concluded that the virus was not released into the body through the digestive system – which proved to be a wrong lead which wasted many valuable years and dollars into useless research. This happened because it was presumed that an assistant in that study had somehow contracted polio through contact with monkeys. Researchers inferred that the virus got to the nose, because the only type of polio virus which they could get to survive in this type of monkey could only be contracted through contact with the nasal passages. This misleading research caused many questions to be asked which actually could never be answered, and provided the first of several vaccines which proved to be useless, or in some cases, to actually infect those exposed to it.

The discovery that polio was a virus encouraged researchers to find The Vaccine to help the immune system fight the Polio virus. For many years there was a debate whether it was best to use a vaccine with a killed Polio virus, or a vaccine with live, ‘attenuated’ virus. There were pluses and minuses associated with either approach. In the 1940’s and 1950’s three studies were taking place in the U.S. One of those involved in the 1940’s was Isabel Morgan, a virologist at Johns Hopkins University. Her progress was ahead of the well-known efforts of Sabin and Salk in developing a vaccine. She was the daughter of a Nobel Laureate and her father strongly hinted he wanted grandchildren. She married and had a child and did not return to virology in a serious way.

Sabin championed the live virus approach to the vaccine in Philadelphia. He believed that approach provided a more effective vaccine. Working in Pittsburgh, Jonas Salk took the opposite approach using a dead virus. He

developed an elaborate system to kill the vaccine but at the same time maintain the original shape of the virus so that the human body would recognize it as the Polio virus. He did this without federal funding, no clinic trial format and without coercion. So with safeguards in place to prevent giving Polio with the vaccine, a randomization study was initiated.

Two million children in the ages of 6-7 years old were given placebo or the vaccine in 1954. Those given the placebo had more incidents of contracting the disease than those given the vaccine in a ratio of 600/30. Some bias still existed in this study. Although highly successful, the first trial remained unpredictable. Nevertheless, a news conference was held by the University of Michigan announcing the achievement of a vaccine which prevented someone from getting Polio.

There was a rush to produce the vaccine with several companies assigned to begin this effort. One of those companies, based in Berkeley, CA, failed to kill all of the virus as required, leading to many people getting Polio. It was a major embarrassment and raised national concern.

During the cold war period of our nation the American Medical Association (AMA) campaigned to stop vaccinations in schools. They believed that this would be safer if done in doctor's offices. However, this proposal led to federal oversight of the Polio virus production that would certify the virus had been killed. Still convinced his live virus vaccine was better, Dr. Sabin achieved approval to inoculate millions in Russia. The results were mostly positive but some of the participants got Polio. For this reason the Salk vaccine ultimately prevailed.

This concluded Dr. Strasser's formal presentation.

Questions and Answers

1. In response to the question: which of the three strains of Polio leads to paralytic Polio? The answer is that the Type 2 appears to be the one. Both Types 2 and 3 can lead to Bulbar Polio.
2. What is the mechanism? The answer was that there are two types of nerves in the body: Motor and Sensory. Polio affects one type of neuron---the Alpha Motor neuron---that activates muscles.

3. Is there any treatment for fatigue? The answer was that he is very cautious about giving his patients medications for fatigue, as no one knows whether these medications will wear out the neuromuscular system. However, he has dispensed *Mestinon* to some of his patients with special needs in the past. Later clinical RCT results did not confirm the ability of Mestinon to relieve fatigue. It had side effects of diarrhea and flushing but some may receive modest benefits. Other medications that have been used include *Provigil* and *Ritalin*. Both are stimulants. Provigil is probably the more effective medication, very expensive and has all the side-effects of a stimulant.

4. Why do I get fatigued? The answer was that a normal neuron innervates about 100 muscle fibers. However, polio killed many muscle neurons, so that for many of those suffering from polio, one of their neurons may innervate 10,000. Because of this, Dr. Strasser added that we would be prime candidates for any potential stem-cell research into recreating nerve/neuron cells, because any progress could be easily documented, and it would make an immediate impact upon our lives.

5. One member indicated to get relief from fatigue he has used CoQ10. It is found in the vitamin section of drug stores. The answer was to go to the NIH web site and search under Polio Research to get the latest information on this over-the-counter medication, or any other such medication.

APPA is very appreciative of the contributions Dr. Strasser has made today in providing information beneficial to Polio survivors.

Written by Ron Swor and Ivy Stiles⁹

The information provided herein represents what the author believes he heard during the January 10, 2009 presentation at APPA. The author is neither legally or medically trained and for these reasons may not have recorded an accurate accounting or understanding of the important details discussed. Neither he nor APPA assume any responsibility for the accuracy of the information provided. It is, therefore, highly recommended that all and any information provided be confirmed with an appropriate lawyer or physician before applying any of these legal instruments or medical treatments on your own. It is hoped that this summary serves to apprise the reader of available means to help them be prepared for the future.