Dr. Fred Klenner presents case histories on the insidious virus disease he described in his June 1957 article in the *Tri-State Medical Journal*, reprinted here. He presents recommended intravenous vitamin C dose levels and suggests a treatment schedule in some detail. He notes the preferred degree of dilution of the vitamin when the needle is used. He also describes a simple method to assess urine levels of ascorbic acid.—*R.D.M.*

The Clinical Evaluation and Treatment of a Deadly Syndrome Caused by an Insidious Virus

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"Every human soul leaves its port with sealed orders. These may be opened earlier or later on its voyage, but until they are opened no one can tell what is to be his course or to what harbor he is bound."[1] All too often the individual has been *discharged* without knowing the contents of these orders.

In June, 1957, I was privileged to have published in the *Tri-State Medical Journal* a paper on "An Insidious Virus."[2] Additional cases of my own, in adults as well as in children, along with similar "Case Histories" reported in the *obituaries* of several newspapers, seemed evidence enough for this second report.

Two important stages are recognized in this deadly syndrome: Stage (A)—(1) There is a history of having had "the flu" which lasted forty-eight to ninety-six hours, complicated by extreme physical or mental stress; (2) a mild cold, similar to an allergic rhinitis, which lingered on for several weeks but did not incapacitate the individual. Stage (B)—This stage, which is always sudden, will present itself in at least six forms: (1) convulsive seizure; (2) extreme excitability resembling delirium tremens if an adult and with *dancing* of the eyeballs if a child; (3) severe chill; (4) strangling in the course of normal eating or drinking; (5) collapse; (6) stupor.

Other findings of this dramatic second stage are (1) rapid pulse; (2) the temperature can be normal or moderately elevated; (3) respirations twice normal and in some cases will be suggestive of "air hunger"; (4) the pupils in our cases have been dilated with one pupil slightly wider than the other; (5) the urine negative; (6) the white blood count elevated, running from 9,000 to 35,000; (7) in young patients starting the second phase with a convulsion there has been not only a history of normal bowel movements but an enema given at the time of first examination has also been normal; (8) bladder spincter control was abnormal in our cases who convulsed or were in coma when first seen.

It is apparent that the second stage of this syndrome is "triggered" by a *breakthrough* at the site of the choroid plexus. The time required for neurological changes to become evident following this passage of the virus and/or its toxins across the "choroid barrier" is roughly comparable to the time necessary for similar neuropathology to be demonstrated following a severe head injury. Cerebral edema certainly exists in both conditions. Although the cause differs, one mechanical the other chemical, the effect is the same. In this situation, however, one usually has the advantage of knowing whether or not trauma is the causative factor. Differentiating between a virus encephalitis and some other type of space consuming lesion of the brain can precipitate a time factor with a margin of safety so narrow that life and death is separated *only* by minutes. In this emergency the attending physician cannot and must not wait for laboratory procedures.

Case History no. 1: 64-year-old white female was seen at 1 P.M. for a routine check of her blood pressure prior to taking a trip. She gave a history of having had a slight cold which lasted for a few days, roughly one week, prior to this examination. On this visit the temperature was normal as were other findings including her blood pressure. She then departed for a visit with a friend, 150 miles from her home. At 10 P.M. the same day I was called by the patient's husband who reported that his wife became ill, suddenly, after arriving at their planned destination and that they had returned home. A few suggestions for therapy were given by phone with the added understanding that the husband would report on his wife's condition at a later hour. Called again at 1 A.M. the following day, which was just 12 hours from the time of the original routine examination, I found the patient in coma with a temperature of 104° F. (A) She was removed by ambulance to the local hospital. On admission her temperature was recorded at 105° F (Ax. corrected), pulse 120 and respirations 24. Achromycin 500 mg. and ascorbic acid 26 grams were added to 375 c.c. 5% dextrose in water and given intravenously with a drop rate of 75 per minute. The patient was also given nasal oxygen running 5 liters per minute. Consciousness returned one hour following admission; the patient, however, could not swallow water when offered. She was incontinent. The fever dropped to 102.6° F (Ax. corrected) by 11 A.M. but by 12 noon (9 hours following admission) was back up to 104° F. Achromycin 500 mg, and ascorbic acid 26 grams in 375 c.c. 5D water was repeated. Respirations at this point were 36 per minute. Achromycin 500 mg and ascorbic acid 16 grams was given at 11 P.M. By midnight the temperature was 100° F. (rectal) pulse 84 and respirations 28. By 12 noon of the second day (36 hours following admission) the patient's ability to swallow suddenly returned. Following this episode the convalescence was uneventful. Temperature, pulse and respirations remained normal. Achromycin 250 mg. and ascorbic acid 4 grams were given by mouth every four hours. She returned home on the third hospital day. The admission white blood count was 18,000.

Case History no. 2: Five-year-old colored male was seen in my office because the child had had a convulsion 24 hours earlier. The temperature was 104° F (rectal), pulse 130 and respirations 18. The child was extremely restless. Physical examination was within normal limits except for the throat which was red and the turbinates which were swollen. While in the process of writing prescriptions, the child experienced a second convulsive seizure. Following the convulsion four grams ascorbic acid was given intravenously and the little patient sent on to the hospital. On admission three grams ascorbic acid was given intramuscularly and this was followed with four grams in a glass of orange juice every four hours. Chloromycetin palmitate, one teaspoonful, was given every four hours. The hospital course was actually uneventful as the fever curve broke sharply and was normal in 12 hours. He was discharged after one hospital day to continue the above medication for a period of three days. His white blood count on admission was 9,350.

Case History no. 3: Sixteen-months-old white male was given treatment for a mild cold two weeks prior to admission. On the day of admission child seemed normal in all respects, accompanied his parents to church services and then was taken to a friend's house for refreshments. While at the neighbor's home the child suddenly collapsed while standing by a chair and immediately was unconscious. Seen in the emergency room of the local hospital the child lay prostrated on the examining table. The pulse was too fast to count and the child's respirations were above 40 per minute. The eyes were red and "wet." The temperature was 103° F (R). Nasal oxygen was started and two grams ascorbic acid was given intramuscularly. The child was conscious within 10 minutes. He was then removed to a hospital room where two additional grams of ascorbic acid was given, also by needle. This drug was continued every two hours for five doses then extended to four-hour intervals for twelve times. Achromycin drops (50 mg. each dose) were given every four hours. The physical examination and laboratory studies indicated that the child also had bilateral pneumonitis. The temperature was normal after sixty hours. The fever spiked to 102° F (R) on the fourth day and returned to normal following subcutaneous fluids. He was discharged on the seventh hospital day. White blood count on admission was 10,300.

Case History no. 4: 2½-year-old white male seen in my office for examination due to a lingering cold of 10 days duration. Temperature 101° F, throat red, tonsils slightly enlarged, turbinates swollen with grade I mucoid discharge. The ears were negative and the chest was normal to auscultation. Heart normal but the pulse was 130. The eyes were red and "wet." Respirations were labored and fast; this was attributed to his nasal congestion. Prescriptions were written and the child allowed to return home. Fifteen minutes after leaving my office and while the child's mother was having the prescriptions filled the child suddenly began a convulsive seizure. The father returned the child to my office, still convulsing. Three grams ascorbic acid were given intramuscularly; the child did not respond to the pain of this injection. The temperature was now 103° F. The pulse was extremely fast as were the respirations. The child was unconscious. Oxygen was administered from a portable cylinder using a rubber face mask and after roughly 10 minutes the breathing returned to that similar to normal sleep. At this point he was taken to the local hospital. On admission he was given two additional grams ascorbic acid intramuscularly and this was repeated in one hour and then every two hours for 4 doses and finally every four hours for 4 doses. Crystalline penicillin, 25,000 units, was given intramuscularly six hours following admission to guard against secondary invaders. The temperature at this time was 100° F (R). The penicillin was repeated after one hour and then given every six hours. Terramycin pediatric, 25 mg., was also started and given every six hours. The temperature was recorded at 104° F (R) on admission and was normal nine hours later and remained so for the duration of the hospital stay. It is also interesting to note that the "nursing log" read "sleeping" on several hourly notations following admission and after five hours read "taken and retained fluids, respirations slower," and nine hours following admission read "taken milk as if starved." He was discharged on the second hospital day.

Case History no. 5: This case is presented to demonstrate quick response to therapy and also what can happen if treatment is discontinued too soon. This patient had three hospital admissions within 24 days. The pathology was the same on each admission. The patient was a 73-year-old white male. Entered hospital by way of ambulance in an unconscious state. His family gave the history that he had had a slight cold for 10 days prior to his present illness which started with a severe headache, was followed after several hours with a chill, and this was followed one hour later with sudden unconsciousness. On admission his temperature was 103° F. (R), pulse 138, respirations 36, B.P. 150/90. He did not respond to stimuli. Moist rales were heard over the main bronchial tree. The heart was enlarged to the left; otherwise not remarkable. Under-nourishment was marked. Shortly following admission he experienced waves of myoclonic jerks involving all of the skeletal muscles. This prevailed for several hours, and an impression of "progressive cerebral degeneration" was entertained. He was started on nasal oxygen running at 5 liters per minute. Metrazol 0.1 gram was given intramuscularly and this was repeated every eight hours. Achromycin 500 mg and ascorbic acid 20 grams was added to 375 c.c. of 5% dextrose in water and given intravenously; this was repeated in eight hours. Suction and atropine 1/100 grain, given intramuscularly, was employed for bronchial secretions. He regained consciousness 18 hours following admission. Dilantine sodium 0.1 gram was given one hour before meals and at bed hour. The admission white blood count was 10,000. The urine was negative. He was discharged, apparently well, on the third hospital day. He was re-admitted to the hospital 14 days later with the same findings, was given the same treatment and was discharged on the fourth hospital day. The white blood count on this admission was 18,850 with 82% segmented. He was re-admitted to the hospital seven days later with the same findings, except that on this occasion he was conscious. The same treatment was employed except that 24 grams ascorbic acid was used in place of the earlier 20 grams. His white blood count on this admission was 35,900. He was discharged on the third hospital day. This time he was given a 'holding dose' of achromycin V 250 mg. with citric acid (one capsule every eight hours) which he was to take for ten days and ten grams of ascorbic acid to be taken in half water and half citrus fruit juice each day for an indefinite period. He has remained well to-date.

TREATMENT

In the treatment of this particular syndrome two types of drugs are indicated. One drug to kill or neutralize the virus and/or toxins; the other type of drug to prevent or destroy secondary organisms. Ascorbic acid in adequate amounts is the drug of choice for the virus organism. Any one of the mold-derived drugs will adequately handle secondary invaders. In the case of ascorbic acid the amount employed will vary with the severity of the pathology, but in no instance should it be under 250 mg. per kg. of body weight. Clinical response will determine the time interval but it must be remembered that, like all other antibiotics, it *must* be given regularly around the clock. In such cases as we have described in this paper, the initial injections *must* be given by needle. In infants and small children the concentration should be 500 mg. per each one c.c. solution. Two to three grams can be given conveniently by the intramuscular route. Ice cubes held for several minutes to the gluteal muscles will practically eliminate the factor of pain. The intravenous route is always used in our practice in children four years or over. The concentration of ascorbic acid should be one gram per each five c.c. fluid when doses not exceeding 300 mg. per kg. of body weight are given. When doses from 300 mg. to 500 mg. are deemed necessary, and initially this is frequently the case, then the concentration should be 18 c.c. for each gram of the drug. Five per cent dextrose in water is the proper dilutent although there is no contraindication to the use of saline solution "per se." Following the initial injections and provided the patient can swallow and tolerate ascorbic acid orally, subsequent use of the drug should be by mouth. The contents of ampules can be added to citrus fruit juice, the crystals can be dissolved in plain tap water or one-half water and one-half juice; even the tablets can be crushed and added to juice or swallowed whole. Penicillin, triple sulfonamide and one of the tetracycline drugs is recommended for use with ascorbic acid. They can be used as a single unit or in any combination. Massive use of ascorbic acid is compatible with any other choice of drugs and in most instances it will enhance the value of these other remedies.

CONCLUSION

As we observed in June 1957, these cases are suggestive that the toxins of this particular virus or viruses act like a cephalic tetanus-toxemia and that it is not only possible but actually can culminate in diaphragmatic spasm, with dyspnoea and even asphyxia. We have referred to this as a "deadly syndrome" caused by an "insidious virus" and even though this is a fact proven, the condition is not new. The pathology is that previously recognized as "Acute Haemorrhagic Encephalitis." This form is always associated with infective diseases. It would seem that although any type of virus infection can progress to this final stage of encephalitis, that it would be most likely that one particular virus is responsible for this syndrome. In view of the fact that the majority of these cases have been seen during the epidemic season of "Red Measles" the causative agent would appear to be that of "morbilli." According to Wheeler and Jack's Handbook of Medicine, "this type of encephalitis attacks the grey and white, but especially the grey matter of the mid and hind brain and of the cortex. The nuclei of cranial nerves are thus involved. The affected parts are found to be softened and show engorgement and thrombosis of vessels, haemorrhages, and proliferation of leucocytes, the nervous elements being destroyed." This haemorrhagic state is unmistakably a marked deficiency of ascorbic acid. The picture is clear. The history of a lingering cold or having had symptoms like the flu have *depleted* the body's supply of ascorbic acid beyond the daily normal requirements with an obvious break down of the capillary bed. This condition, in itself, demands the administration of large amount of ascorbic acid. Patients who have progressed to this stage, therefore, require massive doses of ascorbic acid and should they fail to receive this treatment, they will experience permanent nerve injury or lose their chance for survival. It is for this same reason, severe deficiency of ascorbic acid, that pregnant women are more susceptible to poliomyelitis than other women. Adequate ascorbic acid coverage can be followed by employing a two minute silver nitrate urine test or by checking the urine with qualitative Benedict's solution and ruling out the co-existence of sugar with the Tes-tape. The silver nitrate test[3] is fast and accurate. Ten drops of 5% silver nitrate is placed into a Wasserman tube. To this is added 10 drops of a urine sample. Read in two minutes the test must show a color reaction of smoke gray to charcoal. If the Benedict's test is used the reaction will be from one to two plus for adequate ascorbic acid coverage, while at the same time the urine will show a negative Testape reaction. We feel that nasal oxygen is beneficial in these cases and should be used as supportive treatment. Maintaining proper Co2 tension is probably equally as important. Here, too, ascorbic acid fits into the picture. Once ascorbic acid enters the blood a series of reactions are set up in which ascorbic acid drops at one phase molecules of water. The water molecule is then broken up, releasing wet oxygen and hydrogen. This wet oxygen tends to assist in the formation of Co2. Critics will argue that cases such as we report here can be handled without the use of ascorbic acid. This is debatable. Many of these patients force citrus fruit juice to tolerance on their own, while others have only a partial recovery and still others die. With the use of massive doses of ascorbic acid I have yet to see a patient not fully recovered. Furthermore the use of large doses of ascorbic acid along with other antibiotics will shorten the illness by at least one-half the usual sickness days, and what is more important, they can be easily handled at home. The cases we report here were admitted for clinical evidence only, since many such cases have been treated successfully at their homes—even at the office with two and three visits a day for two days. Many such cases have been diagnosed, erroneously, as poliomyelitis. In fact it has often in the past been called "polioencephilitis." Wheeler and Jack's Handbook of Medicine[4] lists under symptoms the following: "Sudden onset; headache, vomiting, convulsions, fever, drowsiness, leading to coma and death, or partial recovery." I would caution all physicians to remember that there is only one breath between life and death. This hesitancy on the part of physicians to use large amounts of ascorbic acid stems from the report that "all above 125 mg per day is spilled by way of the kidneys." This is a tragic error in judgment, and rests on the doorsteps of the National Research Council for attempting to allocate a set numerical unit for a chemical that can differ in each one of us either because of the individual kidney threshold level or because of greater requirements necessitated by pathology. This point will be proven beyond question of doubt in a paper now being prepared covering 300 obstetrical patients. This brings to my mind a little ditty that I learned on my mother's knee, to wit: "How few think justly of the thinking few; how many never think who think they do."

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