



Editor's note

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For interest sake, concluding pages of articles may contain "newsy" items of the original date.

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Influenza and Its Osteopathic Management*

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Influenza is regarded as the last and greatest uncontrolled pestilence and continues to challenge the best efforts of the osteopathic school of practice to marshal its scientific resources to combat it.

It is an acute, infectious, contagious disease, characterized by inflammation of the mucosa particularly of the respiratory tract.

With modern methods of communication and the careful compilation of health statistics, the incidence of this disease can be followed quite accurately in all countries through the weekly *Epidemiological Record* issued by the Health Section of the League of Nations. This reveals that influenza exists to a greater or less extent at all times among all people in every country. From these studies, and others conducted by the U. S. Public Health Service, it has been shown that in this country under ordinary conditions the increase in influenza is usually greater from November to March. Further study shows that in years from 1920 to 1935 there were ten brief periods in which the mortality from influenza and pneumonia was sufficiently above the seasonal expectancy to consider the prevalence of these diseases as epidemic. These ten outbreaks are estimated to have caused an aggregate mortality from influenza and pneumonia in the United States of about 300,000 persons in excess of the normal expectancy.

We do not know for a certainty what causes epidemic influenza, but we are definitely sure that it is not due, as the ancients believed, to volcanic eruptions, earthquakes, or poisonous gases emitted from the stars.

It is interesting to note that the word *influenza* was first used by the Italians in 1743 to denote some *influence*, as it was thought then that this disease, heretofore known as "epidemic catarrh", was caused by an influence of unknown origin, probably the stars, while to the French influenza was known as *la grippe* from the word *agripper* to attack.

Outbreaks of this disease may be confined to certain communities or areas or they may become world wide. No one can foretell when epidemics will come, although in England investigators have determined that the epidemics seem to be periodic in their occurrence unless the time when they are due happens to be in warm weather.

Ancient peoples were familiar with epidemics of this disease probably as we know it today. They reported great outbreaks of conditions which, from descriptions, were doubtless caused by influenza. Hippocrates, in 400 B.C., attributed it to changes in the wind. Other alterations in the atmosphere, comets, and floods were believed to hold some influence in initiating any epidemic. Hence, natural phenomena were suggested as causative factors as it was no doubt felt that something of extraordinary magnitude would necessarily have to be responsible for the pandemic character of the disorder.

The disease was described by its present name in American medical literature early in the last century. The word *influenza*, then, denoted its epidemic manifestations and atmospheric changes were thought of some influence, "Though in some cases it has been attributed to contagion." Isolated cases were designated as catarrh even with identical symptoms.

One of the puzzles associated in the epidemiology

*Delivered before the Seventeenth Annual Convention of the Eastern Osteopathic Association at New York, April 3, 1937.

of the disease is the reason for its sudden appearance in epidemic form after a period of quiescence and its startling rate of spread.

The rather definite explanation for this peculiarity is given—that if the disease is caused by a germ, epidemics occur when immunity is lowered and resistance becomes feeble in individuals and the virulence of the causative organism increases to a higher degree as it passes from one person to another.

The past two pandemics, 1889-92 and 1918-19, have been carefully studied epidemiologically, and they appear to have occurred in succeeding waves. The first waves were relatively mild with few complications, although large numbers were stricken. The second and third waves were of increasing severity and were accompanied by a high incidence of fatal complications, particularly pneumonia. The death rate in the later waves was high, although the number of persons primarily infected was smaller. This illustrates the principle that in epidemics and pandemics there is an increase in virulence of the etiologic agent of a disease which exists in mild endemic form. The number of lives lost in the 1918-19 epidemic alone reached the staggering figure of a half-million in excess of the normal expectancy.

Following the 1928-29 epidemic, cities in different sections of the country were selected by the United States Public Health Service for a survey to determine the morbidity of the disease. The samples of the population canvassed comprised not less than 10,000 people. From twelve to twenty districts were marked off in each city and a house to house canvass was made. The total number of cases of influenza, grip, pneumonia, and colds for each hundred persons canvassed ranged from 47.1 in Des Moines down to 15.1 in Baltimore. The average, except in Baltimore, was 29.7. Fifteen per cent of the population canvassed gave a history of having had attacks of influenza, while 0.47 per cent gave a history of pneumonia. The incidence of pneumonia appears to have been one-third as high in the epidemic of 1928-29 as in the epidemic of 1918.

In New Haven, Conn., in the same year, a survey¹ was made exclusively of school children which revealed that 53.8 per cent of all the cases of sickness was due to respiratory diseases, classified under colds, disease of the throat and tonsils, and other respiratory conditions.

Finkelstein² of Germany groups under "influenza in children" all the diseases of the respiratory passages that appear as an acute infection. He states further that children under 6 months of age seldom suffer from an attack of influenza. Up to the fifth or sixth year of age, influenza takes a febrile course with varying degrees of severity, and the children showing a tendency to recurrent attacks are not benefited by tonsillotomy.

The outbreak of influenza in the winter of 1936-37 started in the West South Central section in December, 1936, and spread eastward across the Northern States and westward to the Pacific Coast. It was mild in the East and somewhat more severe in the West North Central, Mountain, and Pacific sections. During the latter part of January, the epidemic declined in all sections of the country except the Pacific coast area.

On January 5, 1937, the Director of the Health Section of the League of Nations cabled the U. S. Public Health Service that influenza was showing an unusually early seasonal tendency to assume epidemic proportions in Central and Northwestern Europe especially in Berlin, Copenhagen, and London. In the latter city the duration of the illness was later reported to run from 4 to 10 days, with gastrointestinal symptoms rather severe.

Mortality from influenza and pneumonia in large cities for the first week of the present year was decidedly higher than the seasonal expectancy in two sections, the Mountain and East North Central areas, where the rates were 521 and 264 in each 100,000 cases respectively as compared with an expectancy of approximately 175 and 100 in each 100,000.

Influenza boosted up the mortality from all causes as 95 cities showed during that week a marked increase over normal expectancy, 14.5 per 1,000 in 1937 as compared with 13.0 for the same week of 1934, a winter of fairly average influenza incidence. New York papers reported for the week ending January 2, 1,571 cases of influenza with 69 deaths and 1,120 cases of pneumonia with 381 deaths.

It is interesting to note that Germany, in having a similar epidemic the first week of this year, showed an identical general rate of mortality as this country.

The increased travel habits of Europe and the Americas in the last fifty years have raised definitely the velocity of the spread of the disease when in pandemic form. Military activities unquestionably favor its general and rapid dissemination.

It definitely follows travel lanes while spreading either by direct, indirect, or individual carrier contacts.

Indirect contact is susceptible to control by regulatory ordinances in both civil and military life, perhaps even more so than the direct, and certainly easier to control than the carrier.

At Fortress Monroe, during the World War, when tableware was used, the highest daily incidence of infection was 6 per 1,000 as contrasted with 83 per 1,000 at Langley Field where mess kits were washed by the old "line method."³

Disinfection of dishes by scalding hot water has not yet been accorded its rightful value as a public health measure.

After numerous unsuccessful attempts during the epidemic of 1889 and succeeding years, to discover the specific cause of influenza, Pfeiffer (1892) succeeded in isolating a bacillus which abounded in the purulent bronchial secretion of patients suffering from epidemic influenza, which, he thought, was the probable cause of the disease. Though that organism has been shown to have definite pathogenic powers, its specificity in epidemic influenza has not been fully proved.

In October, 1936, from Leningrad⁴ came the results of an attempt artificially to provoke infection in 110 volunteer subjects by placing pure cultures of the influenza bacillus in their nasal passages. The cultures were placed on cotton tampons and not only were introduced into the nasal passages but also were rubbed into the tonsils. This part of the experi-

most having failed to produce the disease, the subjects then inhaled a spray of live cultures into the deeper respiratory passages. Whereupon all the 110 subjects developed in from four to six hours a clinical picture of a toxic infectious state, which persisted from one to two days.

All of these persons exhibited at the earliest moment of infection a definite leucocytosis whereas in true epidemic influenza leukopenia is found.

The incidence of the hemolytic streptococcus and the pneumococcus was not affected and remained at the same level as before the experiment.

There was not a single case of contagion among the hospital personnel favoring contact infection.

These investigators reached the quite obvious conclusion that true epidemic influenza cannot be provoked in healthy persons by the bacillus of Pfeiffer.

Recent research to discover an etiologic virus for this disease is much more promising. In 1933-34 Laidlaw, Andrews, and Smith,⁸ collaborating in London, discovered that ferrets can be infected by material from the mucous membrane of patients suffering from influenza. A characteristic feverish catarrhal condition is produced in the animals and is transmissible to healthy ferrets. Since the infective material was passed through a fine filter before instillation into the ferret's nostrils, the causative organism must be ultramicroscopic. It has also been found that mice can be infected by nasal inoculation, the illness being of a fatal pneumonic type.

Following this research, Francis and Magill,⁹ in 1935 recovered strains of a filtrable virus apparently having an etiologic significance from infected persons in several localized epidemic regions in Puerto Rico, Philadelphia, and Alaska. Upon inoculating ferrets and mice with these strains, the animals developed a state of active immunity to reinfection. Further, the serum of these animals contained neutralizing antibodies evidenced by the capacity of the serum to confer passive protection to mice against infection with the strains of the virus of human influenza.

These New World strains appear to be immunologically identical with those recovered in Great Britain.

The London workers observed that immunity to reinfection in ferrets following recovery slowly waned after three months.

No virus was recovered from sporadic cases diagnosed as influenza. It therefore becomes a matter of supreme importance, according to these investigators, to differentiate clinically between the disease caused by a ferret-pathogenic virus and other conditions resembling it.

The virus from the Puerto Rico 8 strain has been recovered after being suspended in an experimental air tank within one hour and shown conclusively to retain its virulence when inoculated intranasally into ferrets. None of the ferrets inoculated with samples collected from the tank more than one hour after suspension of the virus contracted influenza, which shows the possibility of it being an air-borne contagion and the extent of its viability.

The blood serum of about one-half the adults in the British and American urban populations thus far sampled have protective antibodies against the virus

of influenza. No antibodies to the virus were found in persons in the acute stage of influenza, but these developed during early convalescence.

In November, 1918, Dr. George W. Riley, New York City, began compiling comparative statistics on the allopathic and osteopathic care of influenza during the epidemic at that time. Those were published in August, 1919.⁷ Briefly, his summary shows that influenza cases under nonosteopathic care throughout the country had a mortality rate of from 5 to 10 per cent and in the city of Chicago the rate was 14.5 per cent. The pneumonia mortality ran from 26 per cent in Chicago to 64 per cent in New York City. These figures are exact because as the author stated, these two diseases are reportable in those cities.

To secure osteopathic statistics, Dr. Riley addressed a questionnaire to all practicing osteopathic physicians in the U. S. and Canada. Two thousand four hundred forty-five osteopathic physicians, representing every section of the country, reported having treated 110,122 cases of influenza with only 287 deaths or a mortality of one-fourth of 1 per cent. They also reported having cared for 6,248 cases of epidemic pneumonia with only 655 deaths or a mortality of 10 per cent.

A further illuminating feature of these reports revealed the fact that few persons contracted influenza who, just preceding and at the time of the epidemic, had been having more or less regular osteopathic manipulative treatment.

To what extent the then prevailing nonosteopathic treatment contributed to the old-school high mortality rate is frankly revealed by Sola-Cohen and Githens in their widely used text, "Pharmacotherapeutics—Materia Medica and Drug Action."¹⁰ They condemn the remedies used in those days as follows:

"The influenza pandemic occurred in 1889-1890. Fever and pain marked the malady and all over the world physicians prescribed antipyretics and acetanilid with disastrous results. . . In 1918-1919, aspirin and acetphenetidin played the same harmful role as was played by antipyrin and antifebril a generation earlier. The lesson had not been sufficiently impressed on the younger generation of physicians."

Barbour and Davento¹¹ state that antipyretics reduce temperature in febrile patients by increasing heat dissipation.

Recent investigations with artificial fever methods show that leucocytosis is produced by speeding up the output of white blood cells under the stimulus of heat. As the blood picture in influenza is a leukopenia and a shift to leucocytosis is clinically desirable, the use of antipyretics because not only illogical but definitely detrimental to the welfare of the patient.

Since the epidemic of 1918-19, when osteopathic treatment proved to be superior to drug therapy in this disease, thousands of cases have been taken care of by osteopathic physicians. Our next great endeavor should be to determine the relative speed of antibody formation with and without osteopathic care in acute cases, and whether or not regular osteopathic treatment definitely will prevent the onset of the disease.

The diagnosis of influenza is largely clinical, and, during epidemics, it is relatively easy. The onset is sudden, with generalized aching, fever, mild chills and marked prostration. Usually the symptoms may be accompanied by mild inflammation of the nasopharynx, larynx, and trachea. As stated before, the blood picture is one of leukopenia with a relative lymphocytosis.

Complications are many and varied depending upon the nature of the epidemic, the presence of secondary invading organisms, and the effectiveness of the treatment administered. Among the important complications are lobar pneumonia and bronchopneumonia, pleuritis, pericarditis, meningitis, acute sinusitis, and otitis media.

A satisfactory management routine in uncomplicated influenza is as follows:

(1) Rest in bed; (2) record pulse, temperature, and respiration every four hours; (3) bowel elimination with daily enema; (4) copious fluids; (5) liquid diet; (6) well-ventilated sick room; (7) bed confinement until 48 hours after evening temperature is normal; (8) daily visit and treatment by attending physician.

The specific treatment is osteopathic. The obvious objective of treatment is directed to stimulate the reticuloendothelial system of the body to combat the infection early.

The spleen, lymph nodes, liver, and capillaries of the bone marrow are structures directly concerned in producing phagocytic cells. The antibody content of the blood is increased by the cellular output of these same organs and its germicidal action is stepped-up to resist the invading organisms.

Our attention should be directed to the cervical and upper thoracic regions and especially the upper rib articulations. Increased ventilation to the lungs should be sought by appropriate manipulation to the chest cage. The lymphatic pump technic, which has become popular in the last few years is a procedure of definite value in the treatment of influenza.

The severity of the case will guide the physician as to the length and frequency of treatment application.

If the patient is seen early, the abortive type of treatment is indicated, which is vigorous and thorough. Subsequent applications are shorter and more conservative.

The osteopathic care of influenza definitely diminishes the course of the disease in point of time and severity. Thus the mortality from uncomplicated cases almost reaches the vanishing point. By retarding the virulence of the invading organisms, appropriate osteopathic treatment reduces the incidence of complications and forces down the mortality rate in these cases to a minimum.

Dr. Still said that the blood and tissues have in them a chemical mechanism that is nature's own preventive and cure of disease. "You do not need drugs," he said, "the blood has a hundred drugs of its own of which the doctor knows nothing." How prophetically accurate his observation has been proved in the osteopathic management of influenza.

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