

Emphysema Deaths Exceed TB

Emphysema, a lung disease characterized by breathing difficulty, yearly disables an increasingly large number of people and causes more deaths than tuberculosis—By Faye Marley

► A MAN carrying a small oxygen tank commutes seasonally between Maine and Florida because he cannot breathe the polluted air of the intervening cities where he once worked. He has one of the more advanced cases of the life-threatening lung disease called emphysema.

To forestall such extreme cases, the National Tuberculosis Association is calling attention to the fact that hundreds of thousands—perhaps millions—have the disease and need medical help.

Tuberculosis deaths fell to 9,311 in 1963, but emphysema deaths rose to 15,120.

Emphysema outstripped all other respiratory diseases in total disability claims allowed by the Social Security Administration in 1963, 14,897. It was exceeded only by heart disease caused by hardening of the arteries.

Although emphysema strikes numerous middle-aged and elderly people—more men than women—it can also strike youthful persons.

What is this disease the name of which many cannot pronounce even when they have it? The name was derived from the Greek and is descriptive of one of the characteristics of the ailment, inflation. The small air sacs in the lungs called alveoli become distended with trapped air that the patient cannot expel from his lungs.

Breathing Becomes Harder

Eventually the strained walls of the alveoli break down, the small blood vessels collapse and the flow of air into and out of the lungs is obstructed. Breathing becomes harder as waste carbon dioxide clogs the lungs and makes extraction of oxygen from freshly inhaled air difficult.

Physicians are studying a variety of possible causes and treatments. At periodic conventions they pool their findings on the disease.

The man who leaves his summer home in Maine every winter to go to Florida so he can breathe is not typical as a case study.

He was gassed in World War I and began wheezing as a college student. His treatment with oxygen several times a day and night, along with supplementary drugs to open his airways, is not necessary or desirable for every patient, especially in the early stages of the disease.

It is an oversimplification to say that emphysema is caused by any one thing and can be treated uniformly.



National Tuberculosis Association

PUMPING UP AIR—A nurse directs emphysema patients in breathing exercises, a treatment helpful to some sufferers from this disease for which there is still no permanent cure.

The cause of the ailment is unknown, said Dr. E. Osborne Coates of Henry Ford Hospital, Detroit. There may be an inherited sex factor, since studies have shown that the ratio of men to women varies between 8 to 1 and 10 to 1. Most physicians believe that cigarettes are a factor, and forbid smoking, but about 10% of emphysema patients do not smoke.

Although many physicians believe that inhalation of dust, silica dust in particular, leads to chronic bronchitis and then to emphysema, Dr. Coates said the evidence is not sufficient to prove the point.

Every conscientious physician can treat emphysema, Dr. Sol Katz of the Veterans Administration Hospital, Washington, D.C., said. Once a diagnosis is made by measuring air flow, treatment is usually available without complicated equipment.

The patient must avoid bronchial irritation and maintain a clear airway, the latter being of utmost importance. Infection must also be controlled.

In the category of bronchial irritation are house dust, coal dust, wood or coal smoke, and in some cases even

cooking odors. Abrupt changes in temperature also will cause breathing trouble. Not only cold air but cold drinks can act as respiratory irritants. It is amazing how often symptomatic relief is available merely by eliminating the cigarette habit, Dr. Katz reported.

Bronchial dilators in the form of sprays, or nebulizers, will relieve bronchial spasms and swelling, or edema. Dr. Katz advises the use of pressurized cartridges that the patient can easily administer himself.

Motor-driven compressed air pumps may sometimes be required for spraying medication, but for the most part, hand bulbs or pressurized cartridges are satisfactory.

Expectorants are used to make secretions less sticky and easily coughed up. Dr. Katz advised hot drinks and a simple inexpensive liquefying expectorant to be taken with each meal and at bedtime. Although potassium iodide has been used for decades, he believes its usefulness is limited, even in large doses. Expectorants containing glycerol guaiacolate may provide better liquefaction of secretions.

In spite of the fact that many physicians advise breathing exercises, Dr.

Katz said their routine use cannot be recommended. Neither can windpipe incisions called tracheotomy, or the surgical removal of the thyroid.

Doctors differ over whether patients with severe emphysema respond to corticosteroids. Certainly these chemicals should not be a first treatment, Dr. Katz said. Granting that the hormones can reduce inflammatory edema, and that they can overcome the effects of an unrecognized allergy responsible for bronchial spasm, he maintains that they can nevertheless cause a euphoric state of mind without having any specific action on the disease itself.

One doctor characterized the control of emphysema as being as complicated as a game of chess, compared with which tuberculosis treatment is an elementary game of checkers.

Low-grade bronchial infections are continuous in emphysema patients, but acute infections are also likely to recur. The only evidence of acute infection may be an increasing cough or shortness of breath, or a change in the material coughed up. Penicillin or an antibiotic that kills a number of organisms may be effective in controlling acute infections.

The two most frequent forerunners of emphysema are allergic asthma and

chronic infectious bronchitis. If these ailments persist, both of them will inevitably lead to emphysema.

One of the earliest symptoms of emphysema is wheezing. This is sometimes interpreted as asthma, and patients are often treated with antihistamines, usually without success. Or shortness of breath may be thought to be an indication of heart trouble, and is treated with rest, digitalis and diuretics, again unsuccessfully.

It is important to understand the meaning of a wheeze. Try blowing through a reed and watch how sound is produced. Only until the sides of the reed are compressed will there be sound. This is comparable to what happens in the bronchial tubes. When the interior is narrowed, either by bronchial spasm or loss of elasticity, the person wheezes. Considering the laws of probability, the sound of a wheeze may indicate emphysema.

• Science News, 89:246 April 9, 1966

MEDICINE

Stroke Causes Linked To Electrical Change

➤ CLOTTING that often leads to heart attacks, stroke and other serious cardiovascular conditions has been linked to a minute change in the electrical properties of blood vessel walls.

When the electrical charge of the vessel walls changes from negative to positive, blood accumulates and causes a clot, a symposium on vascular disease was told in Philadelphia.

Dr. Philip N. Sawyer of the State University of New York Downstate Medical Center, Brooklyn, said that the inner surface of blood vessel walls ordinarily has a negative electric charge, and that since blood cells also are charged negatively, cells and walls do not attract each other. It is only when the electrical charge of the vessel wall becomes positive, either naturally or because a current is applied, that blood is attracted to that portion carrying the positive charge.

By further understanding of this process, which follows basic laws of physics, Dr. Sawyer believes thrombosis in the blood vessels can be controlled.

Dr. Sawyer's research showed that metals such as magnesium and aluminum, because of their electrical properties, would be less apt than other metals to cause thrombosis when used to make artificial heart valves and other cardiovascular prosthetic devices.

A technique called direct current coagulation also resulted from the surgeon's investigations. In this technique, a direct current is used to bring about thrombosis where it is needed to stop bleeding. Dr. Sawyer said the method speeded blood clotting by as much as a thousand times and stopped uncontrollable bleeding.

The symposium was sponsored by Philadelphia's Albert Einstein Medical Center as a part of its centennial observance.

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MEDICINE

Blood Flow to Brain Improved by Drug

➤ BLOOD FLOW to the brain can be improved by the drug nylidrin hydrochloride, New York University researchers reported.

The research implies that nylidrin (trade name: Arlidin), produced by U.S. Vitamin and Pharmaceutical Corporation, could eliminate to some degree the problem of decreased blood flow associated with cerebral vascular disease and senility.

The drug was given successfully by mouth and by injection to 16 youthful volunteers aged 18 to 31. Brain wave measurements and determination of the acidity or alkalinity of blood indicated the positive effects of nylidrin.

Nylidrin is indicated for disorders including night leg cramp, frost bite, arteriosclerosis obliterans in which the artery is clogged, and other conditions marked by inadequate blood flow.

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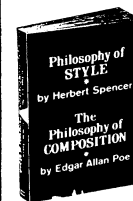
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