

Heat Wave Causes Deaths

► THE DOZENS of deaths that result from heat waves such as the one that recently baked much of the country are often blamed simply on "sunstroke." But the case is much more complicated than that.

Estimates are made of hundreds of deaths, but statistics are never quite clear on such numbers. Mortality statistics in the Public Health Service list only 195 deaths in 1964 from "excessive heat and insulation," with 196 deaths in 1963, and 154 in 1962. But numerous old people were certified by their doctors to have died of coronary thrombosis or some other type of heart attack, and no one knows how much the heat contributed to their deaths.

Many physicians are unfamiliar with the wide spectrum of symptoms in heat diseases, according to two Mayo Graduate School of Medicine doctors, claiming that articles dealing with these diseases in medical literature of recent years have concentrated on only limited facets.

Heat cramps, heat exhaustion and heat stroke are the three major heat diseases, with heat stroke, which affects multiple systems of the body, the most serious. The death rate from heat stroke

is as high as 50%. Heat cramps occur as the result of sodium chloride loss in perspiration and can be prevented by taking extra salt in the diet, while heat exhaustion is a more serious form of sodium chloride depletion.

Heat stroke involves failure of the heat-regulating mechanism of the hypothalamus associated with cessation of sweating followed by inadequate oxygen supply and other body conditions. It can occur following various surgical procedures.

One patient, for example, ran a body temperature of 108 degrees F. two days after having a partial thyroid removal.

Death from heat stroke has been reported after fever therapy and hydrotherapy for sedation and for treatment of venereal diseases. Heat stroke can be caused by fever-accompanied illnesses such as malaria and typhus. Also, persons with congenital absence of sweat glands have marked sensitivity to heat.

"With our current commitment of manpower in Southeast Asia," said Dr. Paul G. Gottschalk and Juergen E. Thomas in Mayo Clinic Proceedings, 41:470, 1966, "heat diseases will receive increasing medical attention." Heat stroke is a particular problem in

the armed forces where large groups of unacclimatized individuals may be exposed to a "heat-stressful" environment.

Partial acclimatization can be achieved in two weeks, but full acclimatization may require up to two months. It is not a good idea to start soldiers in a tropical climate on long hikes the day after their arrival.

The Mayo doctors warned that drinking alcohol has often been implicated as making a person more susceptible to heat stroke. The basic mechanism is probably the excessive dilation of blood vessels near the skin surface, which increases heat absorption from the environment.

Symptoms relating to the central nervous system appear to be in direct proportion to the temperature. Coma, stupor, somnolence or delirium are almost always present.

Kidney and liver complications accompany many cases of heat stroke, and hemorrhages can become widespread due to blood changes. Convulsions or tremors usually occur.

Sponging with water at room temperature is recommended as a treatment rather than immersing a patient in ice water. Convulsions are treated with barbiturates, paraldehyde or other anti-epileptic drugs, keeping in mind the possibility of liver or kidney damage or both. A clear airway for breathing is important, especially in the comatose person.

Dehydration is ordinarily not a problem in heat stroke, so care should be taken to prevent taking too much water, which could cause pulmonary edema.

BIOCHEMISTRY

Synthesized Hormone Will Reduce Shortage

► A HORMONE called secretin, useful in diagnosing diseases of the pancreas, including cancer, has been synthesized in the laboratory.

The polypeptide hormone, which contains 27 amino acids, has been obtained from its natural source, hog intestines, but has remained scarce because of the difficulty in purifying it.

The pancreas is best known as the insulin-producing organ of the body. When cancer occurs there it is of a type that tends to spread, so early detection is of particular importance.

Dr. Miklos Bodanszky of the Squibb Institute for Medical Research, who synthesized the hormone with the help of colleagues, told the Fourth International Symposium on the Chemistry of Natural Products in Stockholm, Sweden, that the synthesis starts with the C-terminal amino acid and adds one amino acid at a time.

The Squibb synthesis was based on the molecular blueprint drawn by Prof. J. Erik Jorpes and Dr. Viktor Mutt of the Karolinska Institute of Stockholm, who first isolated secretin in pure form.

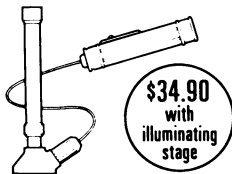
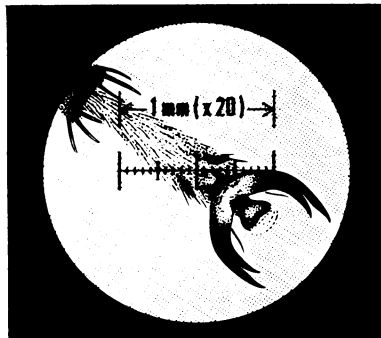
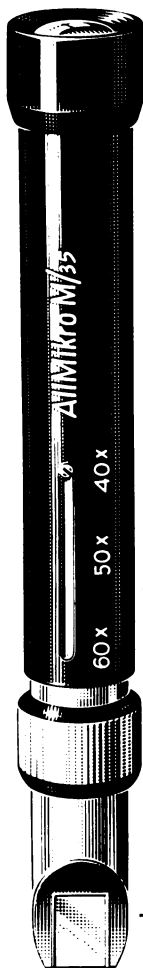
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