

MEDICINE

Blood's Color Death Sign

Pearly white opalescence of the blood serum or plasma following exposure to X-rays signalled death to rabbits. May be applicable to human A-bomb victims.

► WHEN the blood plasma or serum takes on a marked pearly white opalescence within 24 hours after exposure to X-rays or possibly atomic bomb rays, it is a sure sign of death.

This was true in the case of rabbits when X-ray doses were given over their whole bodies. Whether it is also true for humans and for radiation from atomic bombs has not yet been determined but seems likely.

Discovery of the opalescence as a sure sign of early death was made by Dr. Robert L. Rosenthal of the Radiation Laboratory and division of medical physics at the University of California. Part of the studies were aided by the Atomic Energy Commission and the Navy.

Dr. Rosenthal made his discovery in the course of studies of the blood clotting reaction after X-rays. All the animals showing marked opalescence of their blood serum or plasma died as a result of the X-ray

dosages within five days. Those with no opalescence or a lesser degree of it usually survived for at least 30 days, unless death came from other causes. If opalescence occurred, it appeared within 24 hours after irradiation and disappeared in all cases within three days.

Possible application of this death sign might be the rather grim one of weeding out among any future atom bomb victims those who were doomed to certain death from those who might be saved by immediate treatment.

Dr. Rosenthal is now trying, with the collaboration of Dr. John Gofman, to determine the chemical nature of the opalescence. Further study of it, he suggests in his report to the journal, *SCIENCE* (July 8) may lead to understanding of the nature of radiation sickness and how radiation kills.

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MEDICINE

Heat Danger Signal

► DURING heat waves, watch out for sudden stopping of sweating. This is the most important warning sign of impending heat stroke. It is likely to come on about the third or fourth day of a heat wave.

Keeping a look-out for this sign, by regular "sweat rounds," is one of the preventive measures which brought aged residents of the Home of Old Israel in New York through the heat wave of last August without a single death, although the weekly death rate for the city as a whole was more than 100% higher than the expected death rate for that week in August.

The "sweat rounds" and the rest of the stroke preventive program are described by Dr. Louis Friedfeld, chief of medicine at the Home, in a report to the *NEW ENGLAND JOURNAL OF MEDICINE* (June 30).

The program might be equally well followed for sick persons, the very young, and even to some extent by people in general. It calls for light, airy clothing, frequent bathing and proper skin hygiene. Physical exertion and prolonged outdoor exposure during midday are discouraged. Rest periods in well ventilated rooms are arranged. The diet is light, with increased sugar and starch and decreased protein. Salted foods are added to the diet and salt tablets are distributed to the residents of the Home at regular intervals. Plenty of drinking water and citrus fruit juices

are made available and supplementary vitamin preparations are furnished.

"Sweat rounds" are made by the staff of resident doctors to search out the characteristic warning sign of heat stroke. This, Dr. Friedfeld states, has been helpful in starting treatment of heat stroke early.

Treatment starts when a dry skin is noted during a heat wave, even if the body temperature is normal. (Very high temperature is a feature of heat stroke, sometimes going as high as 106 degrees Fahrenheit. Normal is 98.6 Fahrenheit for most persons).

The patient with dry skin is put to bed and his clothing removed. Since there are no air-conditioned rooms at the institution, sponge baths are given frequently and fans are used to keep the air circulating. The patient is encouraged to drink more water and take more salt. When necessary, salt solution is injected into his veins.

If he does not start sweating soon, or if he has a fever, he is put in an oxygen tent with air cooled to below 50 degrees Fahrenheit. The air is kept moving and the humidity low. Usually this treatment is enough, but if very high fever develops, the patient may be wrapped in cold wet sheets or sprayed from a water nozzle and fans are directed on his body.

Besides the stopping of sweating, patients getting heat stroke may have headache,

weakness, nausea or faintness. Or they may suddenly collapse in unconsciousness. Convulsions, vomiting, delirium or stupor and blue skin are other symptoms.

Heat stroke is the most serious of the three conditions that result from extreme summer heat, Dr. Friedfeld points out. The other two are heat cramps and heat exhaustion. In "sunstroke," either heat exhaustion or heat stroke may appear.

Heat cramps do not end fatally. Heat exhaustion comes when the circulation in small blood vessels fails. Normal persons do not usually die directly from heat exhaustion, especially if removed from the excessive environmental heat. But old persons, those sick with weakening diseases and those with impaired circulation may have their deaths hastened by heat exhaustion.

Heat stroke results from failure of the sweating mechanism through involvement of a part of the brain called the hypothalamus. Heat stroke alone may be responsible for deaths caused by excessive heat in previously normal persons.

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Beryllium Damage to Skin And Lungs Is Similar

► BERYLLIUM causes the same kind of damage to the skin when it gets into it as it does to the lungs when it is inhaled. The damage in both cases consists of a kind of tumor which doctors call granuloma.

Two cases showing this were reported by Drs. A. D. Nichol and Rafael Dominguez of the St. Luke's Hospital in Cleveland in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (July 9).

The physicians suggest that this skin condition can be prevented by cutting out the area contaminated by the beryllium before the cuts are allowed to heal.

Both patients had accidentally been cut by broken pieces of fluorescent light bulbs which are coated with zinc beryllium silicate. The cuts healed quickly but subsequently tumors made up of small fleshy masses formed in the scar. There was also ulceration and inflammation at the site of the cut.

Sections of this skin, removed for study, showed that beryllium was present, according to the doctors.

The patients had also developed lung poisoning from working in beryllium-contaminated air to which one had been exposed for four and one-half years and the other for six years. Drs. Nichol and Dominguez noted no change in the lung infection following removal of the beryllium deposits in the skin. Previous reports indicate, they said, that the lungs are not affected by beryllium infection of the skin. The lung damage comes from inhaling the metallic element.

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