

MEDICINE

Fatal Burn Infections

World-wide progress in burn research has been made by physicians and biologists, Faye Marley reports from the First International Congress on Research in Burns.

➤ A GRAM-NEGATIVE species of bacteria called pseudomonas is outstripping staphylococcus as a cause of fatal infection in burn patients.

Lieut. Col. Wilfred T. Tumbusch, Brooke Army Medical Center, Fort Sam Houston, Texas, told the First International Congress on Research in Burns in Bethesda, Md., that pseudomonas organisms have become a major threat, whereas staphylococcus organisms have been declining in importance.

Col. Tumbusch said pseudomonas infections appear to be invariably fatal to burned patients.

In a study of 596 burn patients treated at Brooke between 1954 and 1959, Col. Tumbusch said that 77 died of infection. He said either *Staphylococcus aureus* (golden staph) or *Pseudomonas aeruginosa* (an organism that produces blue pus) or both were found in the wounds of 66 of these patients.

Although there were 17 survivors of severe burns with septicemia (blood poison-

ing) in the five-year period, there were no survivors of pseudomonas septicemia. Death occurred in spite of prompt therapy with Polymixin B and colistin sulfate, the most effective antibiotics known against the pseudomonas organism.

Col. Tumbusch said pseudomonas organisms have been found increasingly in burn surfaces since 1954, and since 1956 have been the most common organisms in burn wound cultures.

He said the cause of the increase is not known. He suggested that the increase of pseudomonas septicemia and the fall of staph invasions "may represent normal cycles of propagation of the species, and a return to the previous ratios may be forthcoming.

"If the trend, however, is real, invasion by *Staphylococcus aureus*, which has been 74% fatal, is being replaced by pseudomonas invasion, which has been lethal in all patients," he said.

Col. Tumbusch believes that in a fatal

burn case, in which the patient has an infection, the infection is the cause of death. He said hope for improvement in this situation lies in the control of the effects of gram-negative bacteria infection.

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May Cause Burn Shock

➤ THE DANGEROUS PERIOD of burn shock during the first 24 to 48 hours following a severe burn may be caused by injury to the heart muscle. Shock is a principal cause of death following burns.

Dr. Henry A. Fozzard of the Washington University School of Medicine in St. Louis, Mo., reported laboratory experiments indicating this possibility to the First International Congress on Research in Burns at Bethesda, Md.

Describing his experiments on 38 mongrel dogs, Dr. Fozzard observed that cardiac output invariably falls precipitously following a severe burn. An explanation of the fall may be primary myocardial (heart muscle) injury, he said.

Dr. Fozzard followed up the hypothesis with treatment, believing that if injury to the heart muscle does occur, drugs such as digitalis would increase the force of the heart contraction. He tested various treatments experimentally.

The dogs were separated into small groups. One group was treated with digoxin (a type of digitalis). Another group was treated by administration of intravenous fluids, while a third was treated both with fluids and digoxin. The experimenters got best results when both fluids and digoxin were given immediately after the burn.

Dr. Fozzard said that collection of fluid in the lungs may be prevented by the use of digitalis for burn patients.

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Dresses Can Be Deadly

➤ WEARING NIGHTGOWNS can be deadly—in case of fire. Dr. A. B. Wallace, Edinburgh, Scotland, surgeon in charge, department of plastic surgery, Royal Hospital for Sick Children, told the First International Congress on Research in Burns, children wearing pajamas less than one-tenth as often as they happen to those wearing gowns.

Dr. Carl A. Moyer, Washington University School of Medicine, St. Louis, Mo., reported that five girl children for every boy child is burned in the American Southwest because the boys wear overalls and the girls wear dresses.

"In England," Dr. Patrick W. Clarkson, surgeon in charge, Casualty Department and Children's Burn Unit, Guy's Hospital, London, said, "the British Independent Television Association cooperated with our request that children not be shown in flammable nightdress before an open fire."

International education is recommended by the Burn Congress to reduce the high number of casualties from burns all over the world. Open heaters are among the most dangerous causes of burn accidents.

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WHALE'S BONES—The fossil bones shown by Franklin Pearce, chief preparator of the Smithsonian vertebrate paleontology laboratory, are those of a whalebone whale estimated to be from 17,000,000 to 20,000,000 years old. Found near Hampton, Va., not far from Norfolk, the whale has been brought to the Smithsonian to be compared with other fossil whale specimens. The whale's shoulder blade, upper arm and forearm are on the table while parts of its skull is on the wagon.