

MEDICINE

Headache Remedy Believed Cause of New Fatal Disease

Pyramidon and Related Medicines Poison Bone Marrow, Causing Drop in Number of White Blood Cells

THE CAUSE of a new, fatal disease has probably been found in amidopyrine, better known as pyramidon, widely used remedy for headaches and for relieving pain in such other conditions as sciatica and arthritis.

Pyramidon and a group of chemically related medicines also used to relieve pain seem to poison the bone marrow where some of the blood cells are formed, causing agranulopenia.

This disease has a number of aliases by which it is known to medical scientists: agranulocytic angina, agranulocytosis, malignant leukopenia, granulocytopenia, and malignant neuropenia. It starts suddenly with fever and sore throat. Some of the patients thought they were getting a cold. Ulcers appear on tonsils, tongue, gums and elsewhere, spreading rapidly. Most striking, however, is the drop in the number of white blood cells from a normal of 6,000 or 7,000 per cubic millimeter of blood to 2,000 or less. The number of red blood cells and the amount of hemoglobin, meanwhile, remain normal. Most of the patients die in spite of treatment.

Discovered By Germans

The disease was first observed by a group of German scientists in 1922. But the connection between the medicine and the disease has only just been observed.

No cause for agranulopenia had been found up to last year. Then Drs. F. W. Madison and T. L. Squier of Milwaukee, mulling over the situation, realized that the increase in number of cases of agranulopenia paralleled the increase in use of pyramidon with other drugs containing a barbiturate, such as luminal. They studied the records of thirteen consecutive cases and found that all the patients had been taking one or more of these drugs over varying periods of time before the onset of the disease.

They tried giving doses of the medicine to rabbits, and one animal developed the characteristic drop in white blood cells, while three others showed characteristic changes in bone marrow.

Previously, in 1931, Dr. R. R. Kracke of Emory University, had pointed out a possible connection between the use of coal tar derivatives and attacks of agranulocytosis. He reported in the next year that 8 out of 9 patients having this disease had been taking drugs containing the chemical group known as the benzene ring.

Both pyramidon and the barbiturates contain this chemical group. Benzene itself has been responsible for poisoning cases in industry. Some persons seem more susceptible to it than others,

PHYSIOLOGY

Muscle Tone Drives Blood In Veins Back To Heart

THE TONE of your muscles is what drives the blood in your veins back to your heart. The poor circulation that may follow an attack of influenza or a surgical operation is due to the fact that the disease or the shock of the operation has lessened the muscle tone.

This new explanation for what has long remained a scientific mystery was offered by Drs. Yandell Henderson, A. W. Oughterson, L. A. Greenberg and C. P. Searle of Yale University at the meeting of the National Academy of Sciences.

The circulation of blood through the body is under the control of the heart and the vasomotor system which presides over the contraction and expansion of the walls of the blood vessels. Dr. Henderson has long believed that in addition to these two mechanisms there must be a third factor responsible for sending the blood back into the heart. Today he announced that he and his associates believe they have found this factor to be muscle tone. Their theory reverses the idea that poor muscle tone was due to poor circulation.

Muscle tone itself is controlled from

and investigators of agranulopenia, suggest that in this disease also individual susceptibility or idiosyncrasy may play a part.

Over 50 cases of agranulopenia, developing in patients who had previously taken pyramidon with or without one of the barbiturates, modern sleeping and pain-relieving powders of the veronal and luminal group, have been reported by Drs. C. H. Watkins and P. S. Hench of Rochester, Minn., Samuel B. Grant of St. Louis, Johnson McGuire of Cincinnati, Clyde L. Randall of Kansas City, Mo., and Arthur M. Hoffman, E. M. Butt and N. G. Hickey of Los Angeles.

The use of pyramidon either alone or in combination with other drugs, should be restricted to patients having white blood cell counts made several times a week, warn the Los Angeles investigators, Drs. Hoffman, Butt and Hickey, in their report to the *Journal of the American Medical Association*.

Science News Letter, April 28, 1934

the central nervous system and considerably influenced by the breathing center, Prof. Henderson said.

The left side of the heart provides the force that drives the blood into the blood vessels in the muscles, he explained. If the muscles have tone a part of this force is taken up by their elasticity and presses the blood on into the veins and on through them into the veins leading to the right side of the heart. But in the absence of muscle tone, the entire force of pressure in the arteries carrying blood from the heart is lost in the flaccid tissues and the blood stagnates there instead of flowing on back to the right side of the heart.

Heart is Body's Sun

"These mechanical relations are best understood by comparing them to the circulation of water in the atmosphere," he continued.

"The sun by its heat lifts water from the sea into the clouds. It supplies the energy, as the heart does in pumping blood from the low pressure in the veins up to the high pressure in the arteries. Meteorological conditions deter-