



Heartland Science

Ohio's Legacy of Discovery & Innovation



Medicine, Health & Science

From the Heimlich Maneuver
to the Speed of Light

General Anesthesia Pioneer

Ernest H. Volwiler, of Hamilton, and Donalee L. Tabern, of Bowling Green, in 1936 discovered the general anesthetic Sodium Pentothal, one of medicine's most important drugs. Used worldwide over the years, it has saved countless millions of patients from unpleasant effects that once were an unavoidable part of surgery. Sodium Pentothal also is the drug sometimes used as "Truth Serum."



General anesthetics make patients unconscious, eliminating the sensation of pain over the entire body. Local anesthetics relieve pain in one area, with the patient remaining awake. Pentothal, an intravenous anesthetic, goes right into the blood stream and works fast. It was the world's first such drug used regularly and became the model for development of a family of other "short-acting" barbiturate drugs that includes Brevital and Surital. Pentothal remains in wide use around the world today.

Although Sodium Pentothal produces rapid unconsciousness, that action lasts only a few minutes. So doctors usually use Pentothal to begin putting patients to sleep, followed by an inhaled anesthetic. That's because many patients would find it very unpleasant to breathe in a gaseous anesthetic while awake. Inhalable anesthetics like ether may cause muscle twitching, hallucinations, and other frightening effects. Pentothal makes the start, or induction, of anesthesia less stressful for patients.

When Volwiler and Tabern began research in the 1930s at Abbott Laboratories, a big pharmaceutical company, doctors used ether and chloroform as general anesthetics. Both are inhaled.

Fun Factoids

The Truth About "Truth Serum"

CIA agents finally nab the terrorist, and desperate to discover whether more attacks are on the horizon, administer a shot of Truth Serum. He immediately blabbers, giving details of the plot and naming names of fellow terrorists.

That's the Hollywood version, and at least part of it is true. Nobody knows for sure whether intelligence agencies actually use such tactics. But "truth serum" really exists, thanks to Ohio inventors Ernest H. Volwiler and Donalee L. Tabern.

In the 1940s, psychiatrists started using Sodium Pentothal in a form of treatment called narcotherapy. It is a kind of drug-induced substitute for hypnosis, which doesn't work in many people. Narcotherapy involves giving a person a dose of Sodium Pentothal too small to cause unconsciousness, but just enough to make the individual relax completely.

In that anxiety-free state, patients are more susceptible to suggestion and psychiatrists think it's possible to uncover repressed memories and feelings that may be contributing to psychological problems.

Sodium Pentothal got the name, Truth Serum, because patients under its influence – and guided by a skillful psychiatrist – lose some inhibitions and may talk freely about topics they might never otherwise discuss. They tell the truth about such topics, but only if they want to. Narcotherapy patients, just like individuals who are hypnotized, don't lose all self-control and blabber out answers to every question. If a person wouldn't disclose damaging information when fully conscious, he probably wouldn't do it when under the effects of Truth Serum. And Sodium Pentothal is not the only drug used as Truth Serum. Some psychiatrists think that drugs like Sodium Amytal and scopolamine are good alternatives.

The two Ohio researchers wanted to find a drug that would "put patients out" quickly and comfortably before starting surgery, and also might have uses alone during brief operations. They tested more than 200 chemical compounds before settling on 5-ethyl-5-(1-methylbutyl)-2-thiobarbituric acid, or thiopental sodium. That's the drug's chemical name. Sodium Pentothal is the trade name that Abbott Laboratories decided to use in selling thiopental sodium.

Sodium Pentothal is also used as a radioprotective drug, to help prevent tissue damage in patients undergoing radiation treatment for cancer and in individuals who encounter radiation for other reasons.

In the 1940s, Tabern started Abbott Laboratories' pioneering work in developing and marketing "radiopharmaceuticals." These special radioactive drugs have important uses in medicine in diagnosing and treating certain diseases. They also are used in medical research. Thanks to his work, Abbott became the first drug company to supply radiopharmaceuticals.

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