

BREAKTHROUGHS

Hot-off-the-press stories
straight from the frontiers of
science, health and medicine

INSULIN BY A NOSE

Finally, a winner in the race to please shot-shy diabetics

People with diabetes have always hoped for an easy, painless way to take insulin. When oral medication became available in the 50's, many diabetics' hopes went up—perhaps too high, since the pills proved effective in treating only some people with the milder form of diabetes (Type II) and didn't do anything for insulin-dependent diabetics (Type I diabetes). Now researchers at Boston's Beth Israel Hospital have developed an experimental technique which, if it works, will dramatically reduce the need for injections among the millions of insulin-dependent diabetics around the world.

Jeffrey S. Flier, MD, head of the hospital's diabetes and metabolism unit, led the team that produced an insulin form that can be absorbed through the nose. The doctors succeeded where others failed because they blended the insulin with a purified bile salt known as *deoxycholate*, which they then administered with a standard commercial nasal inhaler. (Bile salts, produced by the liver, are the "body's natural detergents"—they aid in the digestion of fats.) Helped by the bile salt in a way that is still not fully understood, the insulin crossed the mucous membranes in the nose and promptly increased the level of insulin in the blood.

In spite of its success, taking insulin by nose will probably never replace injections entirely. Why not? Because the nasal insulin spray may not work long enough to see a Type I diabetic safely through the night. There's another problem, too. Patients using the spray complain of a slight soreness in the nasal passages, very much like the



irritation that results from prolonged use of commercial nasal sprays. Since diabetics would be using the preparation on a daily basis, a minor irritation could turn into a major one.

One of the researchers also points out that no one really knows how safe bile salts are. "We believe that they're possibly toxic," says Martin Carey, MD, a gastroenterologist at Brigham and Women's Hospital in Boston. "We've discovered a group of bile-salt mimics that are just as effective but aren't as potentially dangerous."

Team member Alan C. Moses, MD, an endocrinologist from Beth Israel, expects that "if the technique does prove feasible, insulin by inhalation could be available to patients within three to five years." Meanwhile, he and his colleagues warn diabetics not to try to inhale the insulin they already have. That would be not only dangerous but useless: It won't work without a medium like the bile salt.

—Peter Bates

HEALING A HOLE IN THE STOMACH

A popular drug not only soothes gastric ulcers but helps get rid of them

Since its introduction in the United States in 1977, *cimetidine* (Tagamet), a prescription drug that reduces stomach acid secretion, has become the most widely used medication for duodenal ulcers, holes in the lining of the top of the small intestine. Does *cimetidine* work as well for harder-to-heal gastric ulcers, the same condition in the stomach?

To find out, Jon I. Isenberg, MD, head of the gastroenterology division at the University of California, San Diego, and scientists from other institutions in Los Angeles and Dallas, undertook a study of 101 patients with gastric ulcers.

"The study," says Dr. Isenberg, "was designed to determine whether *cimetidine* or antacid [which neutralizes acid that has already been produced] treatment would speed healing and relieve symptoms of ulcer when compared with placebo treatment."

Four times a day, after each meal and before bedtime, liquid and tablet forms of either *cimetidine*, an antacid or a placebo were given to each patient. (Neither the doctors nor the patients knew who was actually getting what.)

The patients—all of whom deserve high praise for their fortitude in the cause of medical research—submitted to endoscopic examinations of their ulcers every four weeks throughout the 12-week study. (An endoscope is an instrument that can be passed down the throat to offer a view of the stomach.)

At the end of the first four weeks,