BIOMEDICINE

Arthritis drug retreats under fire

A drug for reducing pain and inflammation due to arthritis has been removed from the market indefinitely by its manufacturer only three months after it was approved by the Food and Drug Administration. Oraflex, also called Opren and benoxaprofen, has properties similar to those of aspirin, but is taken less often. On Aug. 5, Richard S. Schweiker, Secretary of Health and Human Services, announced that Eli Lilly and Co. had "agreed to voluntarily suspend its sales and distribution of the anti-arthritic drug Oraflex." The drug had been banned in Britain earlier that day for a three-month period of evaluation. Oraflex had been linked to 61 deaths there, mostly among elderly patients. There have also been reports of more than 3,500 cases of adverse reaction in Britain, where the drug has been sold for two years. The British Committee on the Safety of Medicines told the FDA that it was concerned about toxic effects on the gastrointestinal tract, liver, bone marrow, skin, eyes and nails. The FDA now is investigating 11 U.S. deaths that may be associated with the drug.

A Lilly statement maintains that, even though the company is voluntarily suspending worldwide distribution of Oraflex, it believes the drug is safe and effective when used properly. It cites extended clinical trials involving about 4,000 subjects. The first deaths associated with the drug were reported in Britain in May, less than a month after the U.S. approval. Because the British deaths all occurred in elderly patients receiving the maximal recommended dosage of Oraflex, Lilly revised its labeling and sent letters to U.S. physicians emphasizing that elderly patients should be started on a lower dose of the drug. Several organizations, including Ralph Nader's Health Research Group, urged that Oraflex be taken off the market as "an imminent hazard" and they brought a suit in federal court. At a recent congressional hearing, FDA officials were criticized for not being aware of some of Oraflex's side effects, such as jaundice, at the time it approved the drug. The FDA is currently investigating whether Lilly was delinquent in its reporting of side effects.

Interferon blocks cold virus

A British medical team has reported evidence that a nose spray containing interferon produced by genetic engineering can prevent at least one type of common cold. The preliminary study appeared in the July 24 LANCET. Geoffrey M. Scott and colleagues of Medical Research Council Common Cold Unit in Salisbury, England, showed that 19 volunteers who used the nasal spray remained cold-free after they were exposed to rhinovirus type 9, a virus responsible for about 25 percent of colds in adults. Eight of 22 control subjects developed colds after they were given a placebo nasal spray and exposed to the virus.

This study is not the first to show interferon's effectiveness against cold viruses, but previous work used interferon derived at great expense from human cells. Scientists weren't sure whether the interferon produced by genetically engineered bacteria would work on the cold virus, but Scott's results indicate that it did.

George J. Galasso of the National Institute of Allergy and Infectious Diseases in Bethesda, Md., says that because synthetic interferon works against rhinovirus type 9 he expects that it will work on other cold-causing viruses as well.

Galasso says the researchers don't know whether interferon can be used to treat people who already have a cold. He says that interferon, which has no observable side effects when used as a nasal spray, might eventually be used by surgery patients, the elderly or others who might develop serious health problems if they were to catch a cold. He says an interferon nose spray might also be useful to parents who want to avoid catching the latest cold their kids bring home from school.

TECHNOLOGY

A matter of gravity

High school and college physics students, past and present, may remember trying to measure the acceleration due to gravity, g, by timing a pendulum or a freely falling object. If they were lucky, the answers were close to 9.8 meters per second per second. The National Bureau of Standards can do a little better with a new, portable instrument that provides an accuracy of 6 parts in 10^9—enough to detect the change in g over a vertical height of 2 centimeters.

The instrument is a modified optical interferometer in which one of the mirrors is allowed to fall. In an interferometer, light of a particular wavelength travels from a source along two different paths by way of mirrors and then recombines to form a pattern of light and dark fringes. Any slight change in one path length causes the fringes to shift. Thus, a falling mirror will generate a rapidly shifting pattern of light that can be detected photoelectrically. In the NBS instrument, about 600,000 fringes flash by the detector in 20 centimeters of free-fall. The crossing time for every twelve-thousandth fringe is carefully measured and stored in a computer, which can then calculate g. The measurement is closely tied to the international standards for time and length.

James E. Faller of the Joint Institute for Laboratory Astrophysics in Boulder, Colo., says one of the unique features of the instrument is that measurements can be repeated in a short time to obtain a large number of data points. "It is nimble, quick, light and mobile," he says. Although the complete instrument weighs about 400 pounds, it's a considerable improvement over previous kinds of apparatus for determining the absolute gravitational acceleration. A small van can move it easily.

Faller says the apparatus will be useful for measuring the effects of long-term geophysical processes and for calibrating gravimeters, which measure the relative pull of gravity. Five copies of the prototype instrument are now being built for use by several international groups involved in geophysics research. Faller says, "I hope that after several years one will not only know that it really works and what its problems are, but also have a good measure in a number of geophysically different cases of how valuable this new data type is."

Failures and other building problems

What caused the Teton Dam collapse in June 1976 or glass panels from the John Hancock building to smash onto Boston streets? Information about these and other collapsed or damaged structures is difficult to locate, even for architects and engineers. The University of Maryland at College Park is now establishing the first repository for data on the performance of structures, from the collapse of the walkways in the Kansas City Hyatt Regency Hotel (SN: 3/6/82, p. 149) to the premature wear of a rural bridge.

Donald W. Vannoy, co-director of the new Architecture and Engineering Performance Center, says the data bank will initially focus on building performance, but may eventually expand into other areas of engineering such as machinery. The objective is to be able to learn from these problems to improve structural design and prevent future disasters, he says. Anybody, for a fee, will have access to the stored data. Vannoy expects that architects and engineers will request information when they are designing something they've never designed before. Insurance companies, law firms and government agencies would also find performance data useful.

The National Science Foundation has provided $73,839 to get the project started, but Vannoy says the program should be self-supporting once a sufficient data base is collected. The center may serve as a prototype for similar data repositories elsewhere in the world.