

Generic drug effectively treats heart failure

Patients whose hearts are unable to pump blood effectively are only two-thirds as likely to die of heart disease when they add a rarely used generic drug to standard treatments. These findings were so dramatic that researchers halted their study 18 months early and released its results before the scheduled publication in the Sept. 2 *NEW ENGLAND JOURNAL OF MEDICINE*.

In a worldwide study, researchers gave spironolactone to 822 people with severe heart failure and a placebo to 841 patients. Both groups also received widely accepted drugs. After 2 years, 46 percent of the patients getting placebo—but only 35 percent of those getting spironolactone—had died.

About 10 percent of the men getting spironolactone in the study reported breast pain and swelling, but the drug had few other side effects. Spironolactone blocks the action of aldosterone, a hormone that makes blood vessels stiffer and promotes both salt and water retention, circumstances that make it harder for the heart to beat.

This inexpensive drug “could have a huge impact around the world,” says lead researcher Bertram Pitt of the University of Michigan in Ann Arbor. Because of its effectiveness, spironolactone should be widely used, says Karl T. Weber of the University of Missouri Health Sciences Center in Columbia. —*D.C.*

Chemical death hints at preeclampsia

Women who have preeclampsia, a dangerous pregnancy complication marked by high blood pressure, also have unusually low concentrations of a fatty acid derivative called prostacyclin, a new study shows.

Prostacyclin hinders blood clotting and relieves high blood pressure by dilating blood vessels. Its counterpart, thromboxane, abets clotting and constricts vessels. The two normally work in harmony. However, in preeclampsia, this balance tips toward thromboxane late in pregnancy. Severe preeclampsia can lead to convulsions, coma, and death.

Urine samples taken from 134 pregnant women who later developed preeclampsia showed prostacyclin concentrations that were 17 percent lower than those in samples from 139 women who didn't experience the condition. Notably, the difference appeared before any signs of preeclampsia. Thromboxane concentrations were not significantly higher in the women who later showed preeclampsia, the scientists report in the July 28 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

Although the study establishes that a prostacyclin deficiency occurs early in women who go on to develop preeclampsia, it doesn't establish that this is the primary cause of the condition, says coauthor James L. Mills of the National Institute of Child Health and Human Development in Rockville, Md. Nonetheless, the finding suggests that restoring proper amounts of this compound might help prevent preeclampsia, he says. —*N.S.*

Implants cleared of grave risks

Breast implants in some women can rupture and cause infections and other serious problems. The implants, however, don't seem to pose life-threatening health risks, a panel of experts convened by the Institute of Medicine of the National Academy of Sciences reports.

After a lengthy review of implant studies, the committee finds no evidence that the silicone-gel-filled or saline-filled implants pose cancer risks, cause neurological problems, disrupt the immune system, or trigger any novel disease syndrome. The scientists also found no evidence that silicone leached into breast milk of lactating women.

Roughly 1.5 million to 1.8 million U.S. women had silicone breast implants in 1997, when the committee began its review. More than two-thirds of implant operations were done for breast augmentation. —*N.S.*

Hawaiian volcanoes recycle rocks

The slurpy orange lava erupting in Hawaii looks fresh, but it actually contains scraps of reused rock that covered the planet in its early years, according to French and U.S. scientists.



Hawaiian lava has hints of ancient seafloor ooze.

“We find in basalts erupting in Hawaii the traces of ancient sediments,” says Francis Albarède of the Ecole Normale Supérieure in Lyon. These sediments rained down on the ocean floor some 3 billion years ago and were eventually transported by plate tectonics into the planet's interior, propose Albarède and his colleagues in the Aug. 6 *SCIENCE*.

Ocean crust rides on giant plates that founder as they age, eventually sinking into Earth's mantle. For 3 decades, scientists have debated what happens to these former surface rocks. Clues collected in recent years have suggested that some volcanic rocks sink into the mantle and then return to the surface in the plume of hot rock feeding Hawaii's volcanoes.

The new study bolsters that idea, says Albarède, by showing that ocean sediments get dragged down and then rise back up along with the volcanic rocks. The evidence comes from isotopes of hafnium and neodymium. The isotopic ratios of lava collected in Hawaii more closely resemble values found in deep ocean sediments than in typical lavas erupting from seafloor fissures.

Many geoscientists suspect that the plume feeding Hawaiian volcanoes comes from the deepest part of the mantle. The new findings therefore suggest that surface material makes its way to the bottom of the mantle before getting recycled back to the surface, says Albarède. If so, the mantle must stir itself completely from top to bottom—a hotly debated issue among earth scientists (*SN*: 3/20/99, p. 180).

Others hesitate over the depth of recycling. “What the isotopes tell us fairly convincingly is that the Hawaiian plume contains recycled crustal material. I don't think they tell us where the recycled material comes from,” says John Lassiter of the Max Planck Institute for Chemistry in Mainz, Germany. —*R.M.*

Northwest mountain claims snow record

In the middle of a hot, dry summer comes a bit of frosty news. A team of weather experts announced last week that 95 feet of snow fell in the past snow season at Mt. Baker Ski Area in Washington, setting a U.S. record for the highest annual snowfall.

The ski area sits at an elevation of 4,200 feet. Because the snow measurements did not come from an official station for the National Weather Service, the committee of climatologists had to assess the measurement techniques and the quality of the data before they approved the new record, which covers the period July 1998 through June 1999.

The total snowfall of 1,140 inches beat the previous record of 1,122 inches established in 1971–1972 at the Paradise station on Mt. Rainier, about 150 miles south of Mt. Baker. In an average year, Mt. Baker receives about 600 inches of snow.

The snowpack depth at Mt. Baker totaled 26.5 feet at its peak this year, and 18 feet of snow still remained when the climatologists went to visit on June 8, says the team leader, Robert J. Leffler of the National Oceanic and Atmospheric Administration in Silver Spring, Md. The weight of so much snow sliding slowly down the mountain severely bent the steel supports of some chairlifts, says Leffler.

He says that the new figure probably also represents a world record, although the committee evaluates only U.S. data. —*R.M.*