Ibuprofen destroys aspirin's positive effect on stroke risk

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Stroke patients who use ibuprofen for arthritis pain or other conditions while taking aspirin to reduce the risk of a second stroke undermine aspirin's ability to act as an anti-platelet agent, researchers at the University at Buffalo have shown.

In a cohort of patients seen by physicians at two offices of the Dent Neurologic Institute, 28 patients were identified as taking both aspirin and ibuprofen (a nonsteroidal anti-inflammatory drug, or NSAID) daily and all were found to have no anti-platelet effect from their daily aspirin.

Thirteen of these patients were being seen because they had a second stroke/TIA while taking aspirin and a NSAID, and were platelet non-responsive to aspirin (aspirin resistant) at the time of that stroke.

The researchers found that when 18 of the 28 patients returned for a second neurological visit after discontinuing NSAID use and were tested again, all had regained their aspirin sensitivity and its ability to prevent blood platelets from aggregating and blocking arteries.

The study is the first to show the clinical consequences of the aspirin/NSAID interaction in patients being treated for prevention of a second stroke, and presents a possible explanation of the mechanism of action.

The Food and Drug Administration currently warns that ibuprofen might make aspirin less effective, but states that the clinical implications of the

interaction have not been evaluated.

“This interaction between aspirin and ibuprofen or prescription NSAID’s is one of the best-known, but well-kept secrets in stroke medicine,” said Francis M. Gengo, Pharm.D., lead researcher on the study.

“It’s unfortunate that clinicians and patients often are unaware of this interaction. Whatever number of patients who have had strokes because of the interaction between aspirin and NSAIDs, those strokes were preventable.”

Gengo is professor of neurology in the UB School of Medicine and Biomedical Sciences and professor of pharmacy practice in the UB School of Pharmacy and Pharmaceutical Sciences. Results of the study were published in the January issue of the Journal of Clinical Pharmacology.

“We first looked at this issue way back in 1992 in a study conducted in normal volunteers, but it was published as an abstract only,” he said. “We never followed through with a manuscript, but another group published an elegant study in the New England Journal of Medicine showing this interaction at least seven years ago.

“When we began to assess this in our stroke patients, a surprisingly high percentage of a group of 653 patients, around 17 percent, were taking aspirin plus Motrin [a brand of ibuprofen].

“The prescription medication Aggrenox, which also is used for secondary stroke prevention and contains aspirin and extended release dipyridamole, is affected the same way as aspirin,” Gengo continued. “In preventing strokes, it is statistically a little better than aspirin but more expensive.

“However, one of the most common side effects when you first start taking Aggrenox is headache, so some physicians, pharmacists or physician assistants tell patients to take a Motrin so they don’t get a headache. This likely would negate the effects of the aspirin and extended release dipyridamole. Those patients might as well take this expensive drug and flush it down the toilet.”

Gengo and colleagues verified with urine testing that all 18 patients, six men and 12 women, were taking their aspirin or aspirin and extended release dipyridamole as directed. Information on the concomitant use of NSAIDS was obtained from patient interviews. Data from the earlier healthy volunteer study showed the magnitude and time course of each drug administered separately, as well as in combination.

The UB study provides important information, Gengo noted, because in most previous studies, measurements were taken only at one point in time, and that time point may have been during the 4-6 hour window when concentrations of NSAIDS were sufficiently high to inhibit aggregation.

“Our data report the entire time course of this interaction,” he said. “The results showed that platelets resumed aggregating within 4-6 hours when aspirin and ibuprofen were taken close together, leaving patients with no anti-platelet effect for 18-20 hours a day. Normally, a single dose of aspirin has an effect on platelet aggregation for 72-96 hours,” Gengo said.

“When I lecture to pharmacy students, I tell them ‘Please, you have a responsibility to the patients you care for. When you counsel a patient taking aspirin/extended release dipyrdamole to lower stroke risk, tell patients they may have some transient headaches, but to avoid ibuprofen. You may have prevented that patient from having another stroke.’”

Source: University at Buffalo