Antacids may be more important than calcium to protect bones

The calcium in calcium supplements may not be the primary ingredient responsible for prevention of osteoporosis, according to a study reported by Wayne State University School of Medicine researchers in the February issue of *Medicine & Science in Sports & Exercise*, the official journal of the American College of Sports Medicine. Antacids – taken to neutralize excess digestive acid – may be an overlooked factor in protecting bone health.

Wayne State researchers observed that most calcium supplements on the market are composed mainly of antacids – and the calcium benefit may be secondary to the antacid.

"If you think about it, your bone is like a stick of chalk. If you put it in acid, it's going to dissolve. If you neutralize the acid, the bone stays strong. We began to think about the link between dietary acid intake and osteoporosis, or thinning of the bones," said Dr. Warren Lockette, lead author on the study and professor of neurosurgery at the WSU School of Medicine.

While it's clear that calcium supplements make bones stronger, it isn't clear why. Furthermore, it isn't clear whether calcium is the *primary* preventative force against osteoporosis. Based on this study, WSU doctors now believe acid metabolism is just as important as calcium consumption in maintaining strong bones.

"We think there's no question that calcium supplementation is beneficial in making bone strong. We're just not so sure it's the calcium in the supplements that is really important. We think it may be the ability of those calcium supplements to buffer against acid that's found in the body," Lockette said.

ETHNIC DIFFERENCES

The WSU study, "Ethnic Difference in Titratable Acid Excretion and Bone Mineralization," initially sought to explain why black Americans have such a low incidence of osteoporosis, even though they generally consume and absorb less calcium than whites. On the other hand, older white women of European descent have the highest rate of osteoporosis, even though they are the largest consumers of dietary and supplemental calcium.

The study ultimately found that the ethnic differences in bone density had more to do with acid metabolism than calcium. If the body can't neutralize acid efficiently, calcium benefits may be lost.

To test his hypothesis – that the way an individual handles dietary acid affects bone heath – Lockette and his colleagues tested a group of 33 United States Navy SEAL trainees. This cohort of highly trained athletes showed a strong relationship between the prevalence of stress fractures and acid excretion. Those trainees who had the highest acid output were most likely to have stress fractures during their physical training.

Co-author Dr. Stephen Farrow, a WSU assistant professor of internal medicine, is a geriatrician who was intrigued by the differences in the incidence of osteoporosis between his African-American and European-American patients. He collaborated on this study to try and understand the ethnic variables associated with bone density and bone mineralization.

"We found that generally, people of European-American descent had higher excretions of calcium and higher excretions of hydrogen ion – or acid – in their urine than did African-Americans. We don't know whether this is the reason for the difference in frequency of osteoporosis between these two groups, but we feel it deserves further investigation," he said.

DIET

Wayne State researchers believe that calcium could be a surrogate marker for something else in the diet. That is, diets high in calcium may also be high in acid. This link changes the way we view bone health and could help doctors design new prevention plans for people who are at risk for bone deterioration, fractures, or osteoporosis.

"This is a whole new area of investigation that has implications for the aging population in the United States. It explains or may help explain the differences among ethnic groups in bone mineralization. It may have some predictive value at who gets osteoporosis. Also, if endogenous acid production or dietary acid intake really does contribute to how well one's bones mineralize, then we really need to look at our nutritional guidelines, not just in terms of calories, fat content, or sodium intake, but also in terms of acid intake," Lockette said.

The full text of the journal article is available at www.acsm-msse.org. (February 200, page 295)

St. Mary Mercy opens first phase of new cancer center

St. Mary Mercy Hospital in Livonia opened a new cancer center within the hospital to meet the growing need for convenient cancer treatment for patients in our community. The new center, opened Dec. 6, is the first phase in a long-range plan to build a full-service, comprehensive cancer center on site.

The new St. Mary Mercy Cancer Center will provide easy access for outpatient cancer services, education and resources, as well as outpatient infusion, which includes hemotherapy and blood products. Three exam rooms for multidisciplinary clinics will allow patients to experience one-stop service, and a complete resource center will include educational materials and internet access for patients, families and caregivers.

St. Mary Mercy Hospital is the only community hospital in Wayne County accredited by the Commission on Cancer of the American College of Surgeons (ACOS).

"The cancer program at St. Mary Mercy provides our community with a multitude of cancer services, including diagnosis and treatment options, such as chemotherapy, brachytherapy, stereotactic breast biopsy, mammography and radiation oncology," said Dr. Harmesh Naik, medical oncologist.

Cancer statistics are alarming. Approximately one out of every two American men and one out of every three American women will develop cancer at some point during their lifetime. Cancer affects families, not just individuals, and brings with it a host of challenges, issues and concerns.

"Our goal is to meet the challenges that cancer brings to families, providing appropriate care and treatment in a convenient setting for patients," said David Spivey, president and CEO.

Plans for a full-service, comprehensive cancer center include an extensive fund-raising effort to help meet the costs of building such a facility. The future cancer center will bring together the latest technology, expertise, and resources available into one convenient area for patients. In addition, compassionate, alternative supportive care integral to cancer patients and their families will be provided.

For more information on the St. Mary Mercy Cancer Center, call (734) 655.8800 St. Mary Mercy Hospital is located at 34675 Five Mile Road in Livonia. For a physician on staff, call 1-888-464-WELL, and for additional information on cancer services, visit our Web site at www.stmarymercy.org.

THERAPY

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and that they can have some control over their situation. One of the patients told me that I was a blessing and that I had a star in heaven," O'Donnell said.

Sacca said he was very impressed with the program.

"I only went there once, then Colleen started coming to my home. She helped me very much," Sacca said. "She's helped me be able to do a little reading, recommended tapes from the Macomb Public Library and got me a special hand-held magnifying glass with a light on it. I also have a special light and magnifying glass mounted on a table, like an easel," he said.

"They have a good system. I couldn't get along without Colleen, and I really appreciate everything they did for me. It gave me a different perspective on my life. She had a lot of patience with me and really worked wonders with me. I'm sorry I didn't go to them sooner."

For more information about the Visual Rehabilitation & Research Center, call 313-824-2401.

Medication: Yes, patients can get too much of it

The inappropriate use of drugs is a national trend that is causing serious health problems, disabilities, and sometimes even death in patients.

Thirty-eight percent of adverse events that occur are preventable, according to one national study. Senior citizens, patients with multiple medical disorders or more than one physician, and people who have been recently hospitalized are the highest risk of experiencing an adverse event because of drug misuses.

In addition to the health risks involved, the financial costs are enormous. For every dollar spent on a drug, $1.30 is spent managing the complications of drug therapy.

So a team at Henry Ford Health System, led by Barbara Zarowitz, vice president of Pharmacy Care Management, has been working to reduce the number of patients who are taking more medicine than they really need.

And the work of the team is paying off. During a recent six-month period, the number of patients using multiple medications was reduced by 50 percent. Results include:

- Five or more continuing medications dropped from 8.5 to 4.6 per 1,000 patients.
- Two or more benazodiazepines (e.g. Valium) decreased from 5 to 1.3 per 1,000.
- Two or more narcotics (e.g. morphine, codeine) dropped from 18.3 to 3.1 per 1,000 patients.
- Three or more oral drugs for diabetes decreased from 2.3 to 0.6 per 1,000.
- A potentially dangerous combination of Viagra and a Nitrate (e.g. nitroglycerin) dropped from 0.4 to 0.01 per 1,000 patients.

"It's been the right message at the right time, Zarowitz said. "Everyone understands the importance of patient safety."

Zarowitz cites the aging of America, a greater selection of drugs from which to choose, more rapid approvals of medications by the U.S. Food & Drug Administration, and direct-to-customer advertising as reasons patients are taking too many medications or taking them in potentially harmful combinations.

EDUCATION

At Henry Ford, physician and patient education have been key to the project's success, said Zarowitz.

These efforts include using specialized computer software to identify high-risk Henry Ford patients. The information is then shared with physicians through letters, staff meetings or one-on-one meetings. Pharmacists review the records with physicians and offer suggestions on how to reduce the number of medications a patient is taking.

Team members also are working with nurses and medical assistants, providing tips on how to get the best information from patients regarding their medication use.

Patient education materials have included brochures, wallet-size cards for patients to list their medications and posters in exam rooms Appointment reminder notices are now asking patients to bring all their medications including vitamins and herbal supplements to their doctor's appointments.

In recognition of its work, Henry Ford recently received a $50,000 quality improvement grant sponsored by the Pharmacia/AMGA and the National Committee on Quality Assurance.