Leptin, Ghrelin Levels Eyed In Amenorrheic Athletes

BY ALICIA AULT
Associate Editor, Practice Trends

San Francisco — Athletic teenage girls who are amenorrheic have higher ghrelin and lower leptin levels than do athletic girls who are eumenorrheic or girls who are nonathletic, according to a small study. The findings could help tease out whether ghrelin, which stimulates appetite, and leptin, which suppresses appetite, might be related to amenorrhea in young women, especially those with intense energy expenditures and a heightened need for caloric intake.

Ghrelin levels have been shown to be increased in people with anorexia nervosa, and higher levels also have been linked to impaired secretion of hormones that regulate menstrual and ovarian function.

“The hormonal factors that link energy deficit and early onset of low bone density, as well as the stopping of periods in athletes are not well characterized,” said Dr. Maira, who spoke with reporters during the meeting.

The study was funded by the National Institute of Health. It is especially important to tease out the relationships, given that evidence suggests that amenorrhea causes infertility and early onset of low bone density, she said. Some 25% of female high school athletes experience an absence of menstruation.

Dr. Maira and colleagues enrolled 21 girls who were amenorrheic athletes, 19 eumenorrheic athletes, and 18 nonathletic controls. All were aged 12-18 years. Fasting blood was drawn to measure ghrelin, leptin, estrogen, testosterone, and follicle-stimulating hormone levels.

The two athletic groups had similar activity levels, which were higher than that for the control group of nonathletes. The athletes were 85% of ideal body weight for their age, while the other groups were at 99% and 104% of ideal body weight.

But the amenorrheic girls weighed less and had lower body mass index scores than did eumenorrheic girls. They also had slightly disordered eating behaviors—which included dieting—but no use of laxatives or medications to lose weight, said Dr. Maira.

As predicted, the amenorrheic girls had lower leptin levels—half those of the other two groups—and their ghrelin levels were twice those of the other two arms. The girls with the highest ghrelin levels and lowest leptin levels also had the lowest levels of estrogen and of follicle-stimulating hormone, she said.

In an interview, Dr. Maira said that it was not clear whether these hormone disturbances existed before the onset of amenorrhea, but that she was leaning toward a hypothesis that the hormone disturbances are an adaptive response in some girls.

Moreover, these girls might have an intrinsic abnormality that causes that response in the face of energy demands.

Dr. Maira has applied to the NIH for funding of a prospective study more closely examining energy availability and its effect on hormones.

She stated that she had no conflicts of interest related to this study.

MRI Use May Spur Mastectomy For Early-Stage Breast Cancer

BY SHARON WORCESTER
Southeast Bureau

Preoperative magnetic resonance imaging may be a factor in the rising rate of mastectomy among women with early-stage breast cancer, a retrospective study suggests.

Investigators reviewed 5,596 stage 0-II breast cancers in 6,463 women who underwent surgery for the malignancy between 1997 and 2006 at the Mayo Clinic in Rochester, Minn. They found mastectomy rates decreased from 45% in 1997 to 40% in 2003, but then increased to 43% in 2006.

The rebound occurred in tandem with a doubling in the percentage of women who underwent preoperative breast MRI, lead study investigator Dr. Matthew Goetz noted in a preview of the findings during a press briefing conducted by the American Society of Clinical Oncology (ASCO).

The study’s abstract was among thousands posted on the society’s Web site in advance of its annual meeting. Under a new ASCO policy, only plenary and late-breaking abstracts have yet to be posted.

Dr. Goetz and his colleagues at the Mayo Clinic reported that 11% of women studied in 2003 underwent preoperative breast MRI, compared with 22% in 2006.

Patients who underwent preoperative MRI were significantly more likely to undergo mastectomy than were those who did not undergo preoperative breast MRI (52% vs. 38%). A similar increase in mastectomy rates was seen, however, in those who did not undergo preoperative MRI, with rates in those patients increasing from 28% in 2003 to 41% in 2006.

After adjustment for age, stage, contralateral breast cancer, and density, preoperative MRI was found to be an independent predictor of mastectomy (odds ratio 1.7, P < 0.001). Surgical year was also found to be a predictor of mastectomy. Compared with 2003, the odds ratios for mastectomy were 1.4 for 2004, 1.9 for 2005, and 1.7 for 2006 (P < 0.001).

Dr. Goetz noted that other factors might also play a role in the increasing number of women undergoing mastectomy. He cited patient preference—one women choose mastectomy over lumpectomy to maximize their risk reduction—and changes in medical procedures and technologies, such as improved breast reconstruction options and the introduction of genetic testing.

Dr. Julie Gralow, chair of the ASCO Cancer Communications Committee and moderator of the press briefing, added that studies have shown that when breast MRI is performed at the time of early-stage breast cancer diagnosis, more cancer is found in both the breast known to be affected and the contralateral breast than is found on mammography.

“It may be that these surgeries based on MRI are appropriate,” said Dr. Gralow of the University of Washington and the Fred Hutchinson Cancer Research Center, both in Seattle. MRI referral bias might also play a role in the increased mastectomy rates, she noted.

Additional study is required to further elucidate the influence of these various factors on surgical management, and to assess whether the changing trends in surgical management improve outcomes for women with breast cancer, Dr. Goetz said.