Assessing hirsutism in women: a novel screening method for a hairy problem

A group of endocrinologists have devised a new model for assessing hirsutism, or excessive hair growth in women, by noninvasive examination of the chin and abdomen. The research was lead by Ricardo Azziz, President of Georgia Health Sciences University (GA, USA).

The hormonal etiology of hirsutism in women is usually excess androgens in the body, such as testosterone. Women with hirsutism are often overweight with menstrual dysfunction and diminished fertility. It is not considered a disease in itself, but rather a symptom of potentially serious conditions such as polycystic ovary syndrome, diabetes or heart disease. It is therefore important that the symptom is detected well by clinicians for early intervention to treat other diseases. Azziz discusses the significance of examining women for hirsutism: “If you do the math, at least half the women with excess hair growth will be at increased risk for insulin resistance, metabolic dysfunction, diabetes and heart disease. That is why this is such an important marker.”

“We wanted to find a way to identify this problem in women that was as non-intrusive and accurate as possible … We believe this approach is approximately 80% accurate and will be less traumatic for women in many situations than the full body assessments currently used,” said Azziz.

The authors of the study have stated that the modified Ferriman–Gallwey score requires further evaluation as a diagnostic procedure, and also as a method to monitor the success of hirsutism treatment.

“…this approach is approximately 80% accurate and will be less traumatic for women…”

In addition, the cosmetic concerns of hirsutism warrant investigation of the cause for excessive hair growth in women. Azziz explains, “Excessive hair growth strikes at the femininity of women. We are talking about terminal hairs that are harder, more pigmented and thicker than the usual soft hairs you see … You cover yourself up at the beach. You don’t want your partner to see you nude. It can be very damaging to your psychosocial wellbeing.”

The current procedure for diagnosis is complex, involving history and physical examination, quantifying hair growth, measuring androgens and oral glucose tolerance tests to determine the degree of insulin excess and risk of diabetes. The Ferriman–Gallwey score is the gold-standard method used to evaluate and quantify hirsutism. This traditionally assessed 11 body areas, which was later reduced to nine areas. Azziz and colleagues have proposed that modifying this method by scoring hair growth on just the chin and abdomen is a simple and reliable predictor of total body hirsutism.

The study examined 1951 female patients presenting with symptoms of androgen excess. The researchers assessed the extent of terminal hair growth in all of the traditional nine body areas, then established a regression model using these, which indicated that the combination of the abdomen and chin provided the most accurate predictor of hirsutism quantification.

Link demonstrated between oral contraceptives and prostate cancer

It has been hypothesized that the high use of oral contraceptives in particular populations leads to a build-up of environmental estrogen that may contribute to the development of prostate cancer in males.

The research used data from the International Agency for Research on Cancer and the United Nations World Contraceptive Use Report in 2007. The results were published recently as a press release in The British Medical Journal Open and showed that nations with an elevated use of oral contraceptives also had an increased rate of prostate cancer, as calculated using Pearson correlation and multivariable linear regression. However, the idea that oral contraceptives significantly contribute to environmental estrogen is controversial, with other sources such as agriculture and industrial chemicals sometimes being cited as larger contributors.

The results of this study demonstrate that further research into the correlation between the use of oral contraceptives, levels of environmental estrogens and prostate cancer is probably of merit.

- Story by Sam Rose

Source: Cook H, Brennan K, Azziz R et al. Reanalyzing the modified Ferriman–Gallwey score: is there a simpler method for assessing the extent of hirsutism? Fertil. Steril. 96(5), 1266–1270 (2011).

Source: Margel D, Fleshner N. Oral contraceptive use associated with prostate cancer: an ecological study. BMJ Open 1, e000311 (2011); Wise A, O’Brien K, Woodruff T. Are oral contraceptives a significant contributor to the estrogenicity of drinking water? Environ. Sci. Technol. 45(1), 51–60 (2011).
New study suggests a mechanism for the link between cognitive impairment and diabetes

Newly published results from a study carried out at Beth Israel Deaconess Medical Center (MA, USA) into the effects of Type 2 diabetes on the brain suggest that memory loss, depression and cognitive impairment are widespread among older people with diabetes. The results also shed light on possible mechanisms for these effects. These results further emphasize the importance of effective means of preventing and managing diabetes.

The study led by Vera Novak (Beth Israel Deaconess Medical Center) was initiated as a result of findings from a previous study. Novak notes: “In our previous work, we had found that patients with diabetes had significantly more brain atrophy than did a control group; in fact, at the age of 65, the average person’s brain shrinks about 1% a year, but in a diabetic patient, brain volume can be lowered by as much as 15%.”

The group recruited 147 people, 71 with diabetes and 76 without diabetes, with an average age of 65 years. As well as undergoing extensive cognition tests, blood glucose tests, blood pressure tests and giving serum samples, the cohort also underwent functional MRI testing to assess blood flow in the brain. The MRI scans showed that the diabetic cohort had greater blood vessel constriction and more atrophied brain tissue than the controls. The serum samples revealed that high glucose levels correlated with high levels of inflammatory cytokines.

“These results further emphasize the importance of effective means of preventing and managing diabetes.”

Novak notes: “It appears that chronic hyperglycemia and insulin resistance – the hallmarks of diabetes – trigger the release of adhesion molecules (sVCAM and sICAM) and set off a cascade of events leading to the development of chronic inflammation. Once chronic inflammation sets in, blood vessels constrict, blood flow is reduced and brain tissue is damaged.”

The discovery of the adhesion molecules sVCAM and sICAM as biomarkers for altered vascular reactivity, could allow for early intervention in diabetic patients at risk of cognitive decline.

Novak concludes that: “There are currently 25.8 million cases of Type 2 diabetes in the United States alone, which is more than 8% of our total population. The effects of diabetes on the brain have been grossly neglected, and, as our findings confirm, are issues that need to be addressed.”

– Story by Mary Yianni

Study suggests that inflammatory enzyme may prevent weight gain in mice

Results from the first study to investigate the effect of IKKb kinase (IKKKb) on adipose tissue are published in the January 2012 issue of Endocrinology. The results provide valuable insight into the effects of inflammation and obesity on insulin resistance, which could help shed light on the links between obesity and diabetes.

The study, led by Haiyan Xu, Warren Alpert Medical School of Brown University (RI, USA), engineered male and female mice to over express IKKb in their adipose tissue. IKKb is an inflammatory enzyme that acts through NFKB-dependent and -independent pathways and is involved in insulin resistance and obesity-related inflammation.

The results showed that engineered mice were protected from diet-induced weight gains despite eating more than unaltered mice. Engineered mice also had improved glucose and insulin tolerance and decreased blood glucose levels compared with the unaltered mice. Mice engineered to overexpress IKKb also had increased systemic and tissue inflammation. Xu commented that, “Turning on this molecule has a very dramatic impact on lipid metabolism.”

The results from this study suggest that obesity is a more important factor in insulin resistance than inflammation.

“Lower bodyweight is always a beneficial thing for influencing insulin sensitivity,” noted Xu. “Reduced adiposity wins over increased inflammation.”

– Story by Mary Yianni

About the News in Brief

The News in Brief highlights some of the most important events and launches in the endocrinology and metabolism field. The editorial team welcomes suggestions for timely, relevant items. If you have newsworthy information, please contact:

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Source: Novak V, Zhao P, Manor B et al. Adhesion molecules, altered vasoactivity, and brain atrophy in Type 2 diabetes. Diabetes Care 34(11), 2438–2444 (2011).

Source: Jiao P, Feng B, Ma J et al. Constitutative activation of IKKβ in adipose tissue prevents diet-induced obesity in mice. Endocrinology doi:10.1210/en.2011-1346 (2011) (Epub ahead of print).
Intensive glucose-lowering therapy shown to have beneficial effects on kidney function in diabetics

Findings from a long-term study highlight the potential benefits of using an intensive glucose-lowering therapy in Type 1 diabetics.

Findings presented at the American Society of Nephrology’s Annual Kidney Week have indicated for the first time that intensive therapy aimed at lowering blood glucose can preserve kidney function in sufferers of Type 1 diabetes. Although kidney disease is common in diabetic patients, there is presently no effective therapy to combat it.

The Diabetes Control and Complications Trial (DCCT), led by Ian de Boer at the University of Washington (WA, USA), randomly assigned 1441 Type 1 diabetics into two therapy groups. One group received conventional therapy while the other received an intensive diabetes therapy, with the purpose of preventing the symptoms of hyperglycemia. These patients were then treated over an average of 6.5 years. Of these participants, 1375 were observed for outcome in the Epidemiology of Diabetes Interventions and Complications Study (EDIC). Speaking to Future Science Group, de Boer explained the rationale behind this study. “We tested whether DCCT intensive diabetes therapy, which had previously been shown to reduce risks of albuminuria, also reduced the risk of impaired glomerular filtration rate (GFR).”

Analysis of the study data demonstrated that the intensive therapy was more effective at preserving kidney function. Twenty-four of the participants receiving intensive therapy developed impaired kidney function, compared with 48 individuals in the conventional treatment group. Eight of the intensive therapy and 16 of the conventional therapy patients with impaired kidney function experienced kidney failure. Describing the implications of the group’s findings, de Boer commented: “This study demonstrated for the first time that impaired GFR can be prevented in Type 1 diabetes. It also implicates hyperglycemia as an initiating factor in GFR loss in Type 1 diabetes. Combined with previously published beneficial effects of DCCT intensive diabetes therapy on albuminuria, retinopathy, neuropathy and cardiovascular disease, this study reinforces current American Diabetes Association and National Kidney Foundation guidelines to target a hemoglobin A1c >7% in the care of people with Type 1 diabetes.”

De Boer described to Future Science Group the significant challenges in performing such an ambitious study and highlighted the dedication of his staff and particularly the participants in making the trial a success: “The main challenge of this study was generating such a detailed assessment of kidney function over 28 years. This required an enormous amount of work on the part of the DCCT/EDIC investigators and staff and, most impressively, on the part of DCCT/EDIC participants. These participants have attended study visits every 3 months throughout the DCCT and every year since as part of EDIC. 85% of all randomized participants attended the EDIC year 16 study visit, which occurred on average 22 years after DCCT baseline. This is true dedication on the part of the study participants and staff, and it never ceases to impress me.”

– Story by Jonathan Wilkinson

Source: Newswise press release: www.newswise.com/articles/intensive-diabetes-therapy-protects-type-i-diabetics-kidneys

Is estrogen really a risk factor for stroke?

Current scientific dogma suggests that estrogen is a risk factor for ischemic stroke. However, a review of observational studies conducted between 2006 and 2010 has recently been published in the journal Menopause and suggests that the level of risk associated with estrogen is age dependent.

The review was performed by a group at the Mayo Clinic (MN, USA) and analyzed the results of seven studies that investigated the relationship between stroke and early menopause or bilateral oophorectomy. Four of the studies evaluated showed that women who underwent early menopause had an increased risk of ischemic stroke. The additional three studies demonstrated that women who had had an oophorectomy had an increased risk of stroke compared with women who retained their ovaries past the age of 50, but that this threat could be decreased by the use of hormone-replacement therapy. These results indicate a role for estrogen in the level of risk for stroke.

Walter Rocca, of the Mayo Clinic, commented, “The old idea that estrogen is always a problem in the brain has to be corrected.” The team reached the conclusion that before the age of 50 years – the average age of menopause – estrogen is protective for stroke. However, after the age of 50 or 60 years, estrogen acts as a risk factor, as the current consensus implicates. This surprising finding implies that estrogen treatments may be of benefit for women going through early menopause or undergoing oophorectomy before age 50 to lower the risk of ischemic stroke. Further cohort studies and clinical trials will be needed to confirm whether hormone-replacement therapy would be of clinical benefit.

– Story by Emily Tulk

Source: Rocca W, Grossardt B, Miller V, Shuster L, Brown R. Premature menopause or early menopause and risk of ischemic stroke. Menopause doi:10.1097/gme.0b013e31822a9937 (2011) (Epub ahead of print).