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DIABETES IN CONTROL.com NEWSLETTER

The Newsletter for Professionals in Diabetes Care

January 15, 2003 Issue #138

From the Editors Desk:

Kristina Sandstedt, MS, Clinical Exercise Physiologist, Diabetes Educator, brings us: **Diabetes and Heart Disease—How Exercise Can Help Both** – if you are new to our site you will probably want to check out her **archives**.

And if you need even more motivation to get your patients to exercise check out this week's "**Tools for Your Practice**" Print and handout:

Ten Reasons Why Your Adult Patients with Diabetes Need To Exercise"

This weeks overview: [Item #1](#): HRT can reduce diabetes risk by 35%. Item#4 describes the benefits of using metformin in Type 1 patients , and Item#9 tells us that if you are an overweight medical professional, don't expect your patients to heed your advise.

If you missed Dr. Rosens, The Seven Percent Solution, from last week, we suggest you read it this week. Maybe if we had every patient read this it might make a difference

Dr. Brian P. Jakes, Jr., ND has prepared an overview of **Hypertension and Hyperinsulinemia** and some novel approaches to each condition.

Choice Award Update: We have the winner of the Diabetes in Control Choice Award for the best new product for the new millennium. **We will announce the winner next week. We received over 22,000 votes, thanks to all that participated. The winner of the scholarship will be announced on January 29th**

Last weeks "Test Your Knowledge" question had 65% with correct answers. (According to AACE) "Test Your Knowledge" this week and see how you do? [Click Here](#)

Dave Joffe, *Editor-in-Chief*

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which allows insulin doses to be finely tuned for patient needs. NovoPen Junior is available as part of a complete diabetes management system Designed to make insulin administration easy, accurate and flexible. [More Information](#)

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Tools for your Practice:

“Ten Reasons Why Adult Patients with Diabetes Need To Exercise”

This patient pass-out might be what you need to jump start your patients to exercise.

Click for a pdf file to print and pass out. [Click Here](#)

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This newsletter is the condensed version. If you would like to see the full newsletter go to <http://www.diabetesincontrol.com/Issue138index.htm>

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OPEN STUDIES: For Your Participation *(Educators have said that just by participating in a study, they can get better outcomes)*

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We will be conducting a medical professionals taste test on low carb bars if you are interested in participating send an email to editor@diabetesincontrol.com

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This Weeks Items:

1. **Study Finds Hormone Therapy Reduces the Risk of Diabetes by 35%***

[Click Here](#)

2. **New Research Suggests Virus May Not Cause Diabetes**

[Click Here](#)

3. **Criteria for Diagnosing Pre-Diabetes***

[Click Here](#)

4. **Metformin A Therapy in Adolescents With Type 1 Diabetes and Insulin Resistance**

[Click Here](#)

5. **National 10-Year Diabetes Plan Launched**

[Click Here](#)

6. **Type 1 Epidemic in Philadelphia Possibly Triggered by Measles***

[Click Here](#)

7. **Pramlintide Injections Improve Glycemic Control**

[Click Here](#)

14. **Pancreatic Islet Transplantation Produced Insulin Independence In Type 1***

[Click Here](#)

15. **Lowered Insulin Response May Predict Type 1 Diabetes**

[Click Here](#)

ITEMS For The Week:

Item #1

Study Finds Hormone Therapy Reduces the Risk of Diabetes by 35%

Hormone therapy reduces the risk of type 2 diabetes in postmenopausal women who have heart disease.

But no one, including the study's authors, are suggesting that hormone replacement therapy (HRT) be prescribed to reduce that risk. Rather, the report, which appears in this week's issue of the Annals of Internal Medicine, should trigger additional research, experts say.

In the study, Dr. Alka Kanaya, an assistant professor of medicine at the University of California at San Francisco School of Medicine, and her colleagues found that HRT, including estrogen and progestin, reduced the incidence of diabetes by 35 percent during the four-year follow-up in women who had undergone natural menopause and who already had heart disease.

In the new study, Kanaya and her co-researchers zeroed in on a subset of women from the trial known as HERS (Heart and Estrogen/progestin Replacement Study), in which 2,763 women with documented heart disease were assigned to take HRT or a placebo. The main HERS conclusion, that HRT did not help prevent second heart attacks, was released in 1998.

In the newer study, Kanaya and her colleagues focused on the 2,029 women in the HERS trial who were free of diabetes at the outset. These women took either HRT or a placebo each day.

After four years, 160 of the women developed diabetes -- 62, or 6.2 percent, of those on HRT and 98, or 9.5 percent, of those on a placebo.

"We found that in [these] women with coronary disease, HRT reduces the incidence of diabetes by 35 percent," says Kanaya. The reduction held, she says, after controlling for such risk factors as obesity, which boosts the chances of getting Type 2 diabetes.

"The conclusion is that this is a scientifically interesting finding that needs to be confirmed, and that the risk of hormone therapy outweighs the benefits and that it's premature to recommend the use of hormone therapy to prevent diabetes," she adds.

Last summer, a national trial evaluating the benefits of HRT in healthy women was halted after experts determined women taking HRT were at increased risk for strokes and heart attacks but decreased risk for osteoporosis and colon cancer.

"Our feeling is that HRT has a direct effect on the liver, and how the liver processes glucose," Kanaya says. "It's almost a protection against having too much glucose produced by the liver."

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Item #2

New Research Suggests Virus May Not Cause Diabetes

A virus generally believed to be a cause of diabetes might actually help protect people against the disorder.

That, according to a results of a University of Nebraska Medical Center study where researchers led by the husband-wife team of virologists Drs. Steven Tracy and Nora Chapman injected various strains of the virus - coxsackievirus - into mice that were genetically engineered to contract diabetes.

The researchers found two- to tenfold decreases in type 1 diabetes among those mice over a 10-month period when compared with mice that had not been injected with the virus.

The results were published in a December 2002 issue of the Journal of Virology.

"What it could mean, many years down the road, is a potential vaccine against type 1 diabetes," Tracy told the Omaha World-Herald.

The concept is so contradictory to existing theories about the virus that the researchers struggled to find a journal willing to publish their results. But Tracy believes his results are more credible than evidence suggesting the virus may help cause diabetes.

Using a live virus to create a vaccine isn't new. That is how the polio vaccine was created 4 decades ago. But it is new to suggest a virus could protect people against a disease that is partly caused by genetics.

Tracy and Chapman now are studying which strains of the virus are most effective and how they affect older mice. They also are addressing a major complication that surfaced in their research; the virus injections gave many of the mice pancreatitis, an inflammatory disease of the pancreas.

The research group hopes to discover a protein that could be given along with the virus to prevent that inflammation, Tracy said.

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FACT

The 2003 update of the American Heart Association's Heart Disease and Stroke Statistics examined the correlation between physical activity and heart disease. People who are inactive are 1.5 to 2.4 times more likely to develop heart disease. Physical inactivity is more prevalent among women than men, and among blacks and Hispanics more so than among whites.

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time-consuming, inconvenient and expensive procedure. After analyzing data from a sample of U.S. adults ages 40 to 74, researchers determined that using a BMI of 24 percent or more as an initial criterion eliminated 27.2 percent from needing an OGTT. Of the remaining subjects, 41.1 percent did not need an OGTT because their fasting glucose levels varied from the established values of 96 to 125 mg/dl. An A1C level greater than 5.5% also was established as a cutoff value.

Individuals with pre-diabetes are urged to use lifestyle changes, including diet and exercise, to prevent progression to clinical diabetes. *Diabetes Care, November 2002*

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Item #4

Metformin A Therapy in Adolescents With Type 1 Diabetes and Insulin Resistance

Metformin treatment lowered HbA_{1c} and decreased insulin dosage with no weight gain in teens with type 1 diabetes in poor metabolic control.

The study objective was to evaluate whether, in adolescents with type 1 diabetes, the addition of metformin to insulin and standard diabetes management results in 1) higher insulin sensitivity and 2) lower HbA_{1c}, fasting glucose, insulin dosage (units per kilogram per day) and BMI.

The study was a randomized, placebo-controlled 3-month trial of metformin therapy in 27 adolescents with type 1 diabetes, high insulin dosage (>1 unit · kg⁻¹ · day⁻¹), and HbA_{1c} >8%, with measurements of insulin sensitivity (by frequently sampled intravenous glucose tolerance test [FSIGT]), HbA_{1c}, insulin dosage, and BMI at the onset and end of treatment.

The results at $t = 0$, HbA_{1c} was $9.2 \pm 0.9\%$, insulin dosage was 1.2 ± 0.2 units · kg⁻¹ · day⁻¹, fasting glucose was 10.6 ± 2.4 mmol/l, and BMI was 24.2 ± 3.9 kg/m² (means ± SD), with no difference between the metformin and placebo groups. At the end of the study, HbA_{1c} was 0.6% lower in the metformin group than in the placebo group ($P < 0.05$). This was achieved at lower daily insulin dosages (metformin group -0.14 ± 0.1 vs. placebo group 0.02 ± 0.2 units · kg⁻¹ · day⁻¹; $P < 0.05$), with no significant change in BMI. Fasting glucose levels improved significantly in the metformin group ($P < 0.05$). Change in insulin sensitivity, measured by FSIGT, was not significantly different between the two groups at study end. Mild hypoglycemia occurred more frequently in the metformin-treated than in the placebo subjects (1.75 ± 0.8 vs. 0.9 ± 0.4 events · patient⁻¹ · week⁻¹; $P = 0.03$). There were no differences in frequency of severe hypoglycemic episodes or gastrointestinal complaints between the two groups.

From the results it was concluded that metformin treatment lowered HbA_{1c} and decreased insulin dosage with no weight gain in teens with type 1 diabetes in poor metabolic control. Changes in insulin sensitivity were not documented in this study using the FSIGT. Long-term studies will determine whether these improvements are sustained and whether certain subgroups accrue greater benefit from this therapy.

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The diabetes national service framework (NSF), which sets out national standards and performance targets for diabetes care, was widely welcomed by patient lobbyists and doctors and nurses.

Around 1.4 million people in the UK have diagnosed diabetes and another million are thought to have the condition but do not realize it. It is the leading cause of blindness in the UK and it increases the risk of heart disease, kidney failure, amputations and strokes.

The charity Diabetes UK estimates that the health service spends about £5.2bn a year, 9% of the 2000 NHS budget, fighting diabetes and its complications, including heart, kidney and eye disease, strokes and foot problems.

The framework says that by 2006 every person with diabetes, or at risk of developing it, will be offered regular check ups and appropriate treatment by doctors, nurses, and other health professionals to ensure complications are spotted early.

A national clinical director for diabetes will be appointed to oversee the strategy.

The health secretary, Alan Milburn said "We chose diabetes as a NSF because we are determined to improve the quality of care for people with diabetes regardless of where they live or who they are. Our goal is to make the best practice already offered in some places the norm."

The deputy prime minister, John Prescott, who is a diabetic, said: " Most of the time I manage my diabetes myself - like others. The NSF's effectiveness lies in its recognition of this and its commitment to providing patients with the tools they need to manage their own condition."

Professor David Haslam, chair of council of the Royal College of GPs, said: "I was extremely pleased to see the diabetes NSF framework focus on patient empowerment, cultural sensitivity, the importance of community based care, and the value of multi-disciplinary, team-based care.

"I was also particularly encouraged that the framework gives a very clear recognition that an adequate workforce and level of resource is essential if there are to be significant changes in the standard of care". There are 1.3 million people with diagnosed diabetes in England.

Key elements of the delivery strategy include:

- ?? by 2007, every Primary Care Trust will provide eye screening services for all people with diabetes. This will prevent as many as 1,000 people a year from going blind or having their sight impaired;
- ?? by 2006 every person with diabetes, or at risk of developing the disease, will be offered regular check-ups and appropriate treatment to ensure any complications are picked up quickly;
- ?? local diabetes networks that will include people with diabetes who will champion the views of people affected by this disease and help to set local services and priorities; and
- ?? local and national audits to ensure standards are being maintained.

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have developed when the measles virus triggered an autoimmune attack on the insulin-producing beta cells of ill children.

The highest rate of type 1 by race was in the Hispanic population-in Philadelphia, primarily Puerto Ricans-with an incidence rate of 15.5 per 100,000 children. There also was a marked increase in type 1 diabetes among African-American children, which the researchers speculate might have partly resulted from misclassification of cases that actually involve type 2. *Diabetes Care, November 2002*

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DID YOU KNOW:

If a 200 hundred pound man loses 14 pounds he can reduce his risk of developing diabetes by 50% check out the 7% Solution

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Item 7

Pramlintide Injections Improve Glycemic Control

Patients with type 1 diabetes mellitus not only have an absence of insulin but also an absence of the hormone amylin.

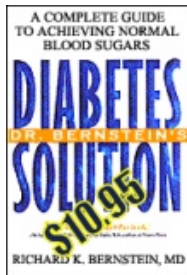
According to the results of a new study, mealtime injections of pramlintide, an amylin analogue, reduce insulin requirements and fluctuations in glycemic control.

"Despite important advances in the delivery and pharmacology of insulin,...many patients with type 1 diabetes still fail to achieve glycemic targets," says Claresa Levetan, MD, from the Medstar Clinical Research Center in Washington, D.C.. "An important barrier to achieving tight glycemic control with insulin therapy alone is...excessive glucose fluctuations throughout the day, most notably in the postprandial period."

Of 18 patients with type 1 diabetes in this study, 16 could be evaluated. Mean age was 44 ± 11 years, and mean HbA(1c) was $8.2 \pm 1.3\%$. Subjects received mealtime injections of 30 μg pramlintide three times daily for four weeks in addition to their preexisting continuous subcutaneous insulin infusion regimen, which included lispro in 16 subjects and regular insulin in two subjects. During the first three days, mealtime insulin boluses were reduced by a minimum of 10%, and they were subsequently readjusted based on clinical judgment.

At baseline, patients had excessive 24-hour glucose fluctuations. Only 28% of the continuous glucose monitoring system (CGMS) measurements were in the euglycemic range (80-140 mg/dL), 59% were greater than 140 mg/dL, and 13% were less than 80 mg/dL.

After four weeks of pramlintide treatment, 37% of CGMS measurements were within the euglycemic range, 48% were in the hyperglycemic range, and 15% were in the hypoglycemic range. Postprandial glucose, glucagon, and triglyceride excursions were reduced by approximately 86%, approximately 87%, and approximately 72%, respectively ($P < .05$ vs. baseline). Mealtime insulin dosages were reduced by 17%, and there were no severe hypoglycemic events. At week six, when treatment had been discontinued, the 24-hour glucose profile and postprandial glucose, glucagon, and triglyceride excursions returned toward pretreatment values.



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Over a Million Copies Sold! Dr. Bernstein, a renowned and even revolutionary figure in diabetes treatment and diabetic himself will show you how you could stop the roller-coaster swings in your blood sugars, steady your glucose levels, reduce your insulin intake and enjoy the same level of good health that nondiabetics enjoy.

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Item 8

Resistance Exercise Improves Glycemic Control in Older Diabetic Patients

A program of high-intensity progressive resistance training (PRT) improves glycemic control and metabolic abnormalities in older patients with type 2 diabetes.

In a 16-week, randomized, controlled study, Dr. Carmen Castaneda and colleagues from Tufts University, Boston, Massachusetts, assigned 62 patients (mean age 66 years) with type 2 diabetes to supervised PRT or to a control group. The exercise intervention consisted of three sessions a week in which the subjects performed three sets of eight repetitions on five pneumatic resistance training machines. Intensity progressively increased during the program.

Plasma glycosylated hemoglobin levels decreased from 8.7% to 7.6% in patients randomized to PRT, and muscle glycogen stores increased from 60.3 to 79.1 mmol glucose/kg muscle. In addition, 72% of patients in this group had a reduction in the dose of prescribed diabetes medication.

There was no change in glycosylated hemoglobin among control patients, while muscle glycogen decreased from 61.4 to 47.2 mmol glucose/kg. Also, there was a 42% increase in prescribed diabetes medications.

PRT subjects versus control subjects also increased in lean mass (+1.2 versus -0.1 kg), reduced systolic blood pressure (-9.7 versus +7.7 mm Hg), and decreased trunk fat mass (-0.7 versus +0.8 kg), Dr. Castaneda reported.

They conclude that "appropriately prescribed and supervised" high intensity resistance exercise training is feasible and beneficial for older type 2 diabetics. *Diabetes Care 2002;25:2335-2341.* **See this weeks "Tool for Your Practice".**

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Choice Award Update:

According to lead author Dr. Robert Hash from Mercer University School of Medicine in Macon, Georgia, "For some patients, the perceived health status and health behavior of the physician may be a factor in the readiness to accept advice and or counseling."

Previous reports have found that physicians who practice a particular health behavior are more likely to counsel their patients about that health behavior. Other reports have found that physicians who try to improve their own health habits are more likely to advise their patients about general health habits.

Few studies, however, have looked at whether a physician's own health status--obese versus non-obese--affects patients' perceptions of his or her healthcare advice.

To investigate, Dr. Hash and colleagues surveyed 226 patients from five physicians' offices in Georgia. Two male physicians were classified as obese, with weights of 125 kg and 102 kg. The remaining three physicians--one man and two women--were not obese.

Overall, patients said they were more receptive to treatment advice from non-obese physicians than from obese physicians, the researchers report in the January issue of Preventive Medicine.

This may be because patients looking at a trim, fit physicians are more likely to think, "This person appears to know what he's talking about," Dr. Hash said.

Yet, for reasons unknown, the patients were equally receptive to advice from all five physicians about general weight control and fitness, the report indicates.

In general, among obese physicians, "the 'do as I say' mentality is possibly at work," Dr. Hash said. "But...practicing positive health behaviors is much harder than talking about them."

Prev Med 2003; 36: 41-44.

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Special Feature:

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Item 10

Diabetes Preventive Measures Improving, But Still Not Good Enough

According to a report from the U.S. Centers for Disease Control and Prevention.

Although more people with diabetes are taking measures to prevent or delay diabetes-related complications, the number still falls short of recommended national health objectives, according to a report from the U.S. Centers for Disease Control and Prevention.

Findings based on telephone interviews of adults with diabetes in 1995 and in 2001 show that the rates of all preventive-care practices--especially eye exams for diabetic retinopathy and self-monitoring

According to the report, however, "use of preventive-care practices ... among people with diabetes in 2001 was less than recommended, and improvement is Needed in all areas of diabetes care."

U.S. Centers for Disease Control and Prevention, Morbidity and Mortality Nov. 2002

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Item 11

High Blood Pressure In Kids Predicts Insulin Resistance

Adding exercise and supplements will reduce IR

If your teenager has high blood pressure, researchers in the Czech Republic suggest taking steps to ward off insulin resistance. They add that High blood pressure is also associated with low folate levels and a high homocysteine level.

The researchers examined 164 subjects with a median age of 19 who had high blood pressure, and 173 control subjects with a median age of 18. Most of the study participants were males.

Compared with the control subjects, those with high blood pressure had a higher body mass index, higher insulin levels and lower HDL ("good") cholesterol levels. They also registered lower levels of folate and higher levels of homocysteine.

Treatment protocols may include exercise to lower insulin resistance. Supplements that aid in lowering homocysteine include vitamins B-6 and B-12 and folic acid. *American Journal of Hypertension, Oct. 15, 2002*

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DID YOU KNOW: Two studies published this week suggest that life expectancy decreases as excess body mass grows. A severely obese 20-year-old white man can expect to lose 13 years of life, compared to a normal weight peer, according to research in Wednesday's issue of the Journal of the American Medical Association. Even a slightly overweight young adult male may lose a year off his life.

Check out the Open Fiber Study ([Click Here](#))

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Item 12

Inflammation Marker More Likely to Predict Diabetes in Women

C-reactive protein (CRP) is an inflammation marker that has been implicated in the development of type 2 diabetes in Caucasians.

However, a new study has found that, among Mexicans, CRP is likely to predict type 2 diabetes in

the women had developed diabetes. The incidence of the metabolic syndrome adjusted for age, smoking, alcohol use and physical activity-was significantly higher in women with higher levels of CRP.

A novel finding in this study is that high levels of CRP in women predicted metabolic syndrome even in the absence of obesity and insulin resistance.

The researchers note that most previous studies on CRP and diabetes have not separated results for men and women. *Diabetes Care, November 2002*

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Item 13

The Association Between Celiac Disease And Diabetes

When celiac disease is diagnosed before diabetes mellitus, clinical presentation of the diabetes is severe, say researchers.

Researchers from the Universities of Parthenope and Federico II, Naples, Italy, enrolled 383 type I diabetics. Thirty-two of these patients also were diagnosed with celiac disease (8.3% of the total). Celiac disease was diagnosed before the diabetes in eight patients while the remainder were diagnosed with celiac disease after the onset of diabetes. Furthermore, 18.7% of celiac disease patients had a third autoimmune disorder.

Ketoacidosis and other autoimmune diseases were more common in patients diagnosed as having celiac disease after the onset of diabetes compared with diabetes alone. This difference did not emerge in those that developed celiac disease after the onset of diabetes.

Patients diagnosed with celiac disease after the onset of diabetes and who had not developed symptoms were less likely to be female, were older at the onset of diabetes and were less likely to develop ketoacidosis or express another associated autoimmune disease than symptomatic patients.

The authors concluded that celiac disease and diabetes mellitus could manifest as "a wide clinical spectrum". They speculated that the distinct phenotypes might arise from different genotypes.

Diabetologia 2002; 45: 1719-1722

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FACT:

The World Health Organization (WHO) estimates that 177 million people worldwide have diabetes, a figure that's expected to surpass 300 million by 2025. Dr. Paul Zimmet, director of the International Diabetes Institute (IDI) in Victoria, Australia, predicts that diabetes "is going to be the biggest epidemic in human history.

and 563,206 pancreatic islet equivalents (IEQ). Two patients underwent a second islet transplant with 326,720 and 768,132 IEQ to increase functional pancreatic islet reserve. Follow-up was between 0.5 and 4 months.

Mean glycosylated haemoglobin values and the mean amplitude of glycaemic excursions declined in two and three patients respectively. Islet allografts responded to *in vitro* glucose stimulus before and after shipment to the transplant centre. No patient experienced hyperglycaemic or hypoglycaemic episodes since the transplant. No complications occurred.

The authors came to three conclusions: first, pancreatic islets remain viable after shipment to remote sites for transplantation; second, a small number of regional units could supply isolated pancreatic islets to remote transplant centres and third, that pancreatic islet transplantation performed by remote centres can produce insulin independence.

Transplantation 2002;27:1761-6

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Item #15

Lowered Insulin Response May Predict Type 1 Diabetes

A lowered first-phase insulin response could occur early in pre-diabetes among young children at genetic and immunological risk for type 1 diabetes.

This lowered response implies a rapid autoimmune destruction or loss of function of beta cells, say Finnish researchers. It also suggests possible metabolic compensation mechanisms, they added.

Although reduced insulin responses were considered a sign of well-advanced deterioration of beta-cell function during the development of type 1 diabetes, the researchers said, there were no data on these responses at the onset of diabetes-related autoimmunity.

In this study, newborns were screened for HLA-DQB1-associated genetic risk for Type 1 diabetes. Those found to be at increased risk were followed up for the emergence of islet-cell antibodies. If these were detected, autoantibodies to three other antigens (insulin, GAD65 and IA-2) were measured too.

Fifty two children (aged 1 to 5 years) who had recently seroconverted to islet-cell antibody positivity, underwent intravenous glucose tolerance tests in order to measure first-phase insulin responses to intravenous glucose.

The first-phase insulin response was subnormal in 22 of these children (42.3%). Statistical analysis showed that islet-cell antibody of more than 20 Juvenile Diabetes Foundation units, as well as insulin autoantibodies and an increasing number of positive autoantibodies, were independent predictors of low first-phase insulin response.

The researchers pointed out that 11 of the 22 high risk children remained non-diabetic for a long time despite low insulin responses. It was this, the researchers said, which suggested rapid autoimmune destruction, loss of beta cell function and possible metabolic compensation.

Diabetologia 2002;45:1639-1648

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Steve and Dave
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