**Insulin Restriction May Cut Life Span**

**BY BRUCE K. DIXON**

*Chicago Bureau*

Women with type 1 diabetes who take less insulin than prescribed may be raising their risk of complications and shortening their life spans. Because of various psychosocial variables, many of these patients have undiagnosed diabetes and do not achieve the American Diabetes Association's glycemic targets, said Ann E. Goebel-Fabbri, Ph.D., of the Joslin Diabetes Center and Harvard Medical School, both in Boston, and her associates. Chief among the implicated variables are general psychological distress, diabetes-specific distress, fear of hypoglycemia, concern about weight gain, and related eating disorder behaviors.

In this 11-year study, the largest to examine the long-term effect of insulin restriction on the morbidity and mortality of women with type 1 diabetes, insulin restriction at baseline conveyed more than a threefold increase in the relative risk of death, said the authors (Diabetes Care 2008;31:15).

At baseline, the cohort included 234 women aged 13-60 years who had a diagnosis of type 1 diabetes for at least 1 year and who agreed to be followed up. Of those, 26 died during the study period. Mean age at follow-up was 45 years, range 24-72 years.

Women reporting insulin restriction showed distinct clinical differences from those reporting appropriate insulin use. At baseline, insulin restricters were significantly younger (aged 32 vs. 36 years) and had higher baseline hemoglobin A1c values, poorer diabetes self-care behaviors, higher levels of diabetes-specific distress, and higher scores on measures of bulimia and other eating disorder symptoms. Compared with their living counterparts, deceased insulin restricters at baseline had higher BMI and hemoglobin A1c values and reported more symptoms of bulimia and higher levels of diabetes-specific distress.

"These data suggest that mortality associated with insulin restriction occurred in the context of eating disorder symptoms, rather than other psychological distress," the authors said. They added that these patients require careful monitoring and would benefit from in-depth evaluations by a mental health professional, ideally one with specialized training in diabetes.

The researchers suggested physicians screen type 1 diabetes patients by routinely asking them if they follow their insulin prescriptions. "The health and wellness of women with type 1 diabetes is likely to be promoted by greater attention to the problems of insulin restriction in future research and clinical practice," they concluded.

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**For Large Doses of Insulin, Look to U-500**

**BY SHERRY BOSCHERT**

*San Francisco Bureau*

**San Francisco —** For patients who need large doses of insulin (more than 200 U/day), U-500 insulin is the best choice because of more predictable pharmacokinetics and lower cost per unit.

"[With] a huge volume of insulin—60 or 80 U—you’re going to have more variability in the absorption" with conventional insulins such as U-100, lispro, or glargine, Dr. Iril B. Hirsch told a meeting sponsored by the American Diabetes Association.

Although U-500 insulin is called "regular" insulin, "it ain’t like regular insulin" because it’s five times more concentrated and has longer pharmacokinetics, said Dr. Hirsch, professor of medicine at the University of Washington, Seattle. This has caused confusion in some hospitals regarding dosing.

For clarity, some physicians refer to millicuries of insulin per milliliter using U-500 insulin, he said. With U-500 insulin, "Don’t think about 100 units; think in terms of megacuries." The basal/prandial distinction we make with conventional insulins is not applicable, he said.

"For Large Doses of Insulin, Look to U-500"

**Guide for Dosing U-500 Insulin**

**If the patient needs**

<table>
<thead>
<tr>
<th>Use</th>
<th>U-100 insulin</th>
<th>U-500 insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 200 U/day</td>
<td>U-100 insulin</td>
<td>U-100 insulin</td>
</tr>
<tr>
<td>200-300 U/day</td>
<td>b.i.d. regimen of U-500 insulin</td>
<td>t.i.d. regimen of U-500 insulin</td>
</tr>
<tr>
<td>300-750 U/day</td>
<td>t.i.d. regimen of U-500 insulin</td>
<td>t.i.d. regimen of U-500 insulin plus a fourth dose at bedtime</td>
</tr>
<tr>
<td>750-2,000 U/day</td>
<td>t.i.d. regimen of U-500 insulin plus a fourth dose at bedtime</td>
<td>More than 2,000 U/day insulin pump</td>
</tr>
</tbody>
</table>

Source: National Institutes of Health

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**Metabolic Disorders**

**Mull the Risks And Benefits in Older Diabetics**

**BY SHERRY BOSCHERT**

*San Francisco Bureau*

**San Francisco —** The heterogeneous nature of patients with diabetes makes it imperative to assess each patient individually before deciding whether to use aggressive or more conservative therapy, Dr. Hermes Flores said.

Some older diabetes patients have newly diagnosed disease and are quite functional, whereas others have long-standing disease and significant functional decline. Older adults are more likely to have multiple comorbidities and to be taking multiple medications.

It is also important to consider life expectancy, noted Dr. Alan S. Dunaief, endocrinologist at the University of Miami and the Miami Veterans Affairs Medical Center, at a meeting sponsored by the American Diabetes Association.

To help chart an individual’s management plan, one should balance the potential benefits of aggressive glycemic control against the risks from comorbidities, medication side effects, and geriatric syndromes such as dementia, incontinence, and depression, advised Dr. Flores. He described the following sample highlights to use in treatment decisions:

► **Low risk, high benefit.** Aggressive treatment was an easy decision for a 70-year-old woman with a 20-year history of diabetes who also had hypertension, lipid abnormalities, and early appearance of retinopathy but who functioned well independently and had no other comorbidities.

► **High risk, low benefit.** The opposite was true for a 66-year-old man with a 4-year history of diabetes who also had severe cardiomyopathy with ventricular tachycardia that could not be controlled. He already was taking 14 medications. Intensifying treatment for better blood pressure, lipid levels, or blood sugar control could pose greater risks than benefits.

► **High risk, low benefit.** Less easy to manage was a 75-year-old woman with new-onset diabetes, none of the associated cardiovascular risk factors, no other comorbidities, and no functional impairment. She’s at low risk, but evidence is lacking that she would benefit from intensive therapy to lower her HbA1c level.

► **High risk, low benefit.** A 72-year-old man with long-standing diabetes of 18 years’ duration, a history of multiple hypoglycemic episodes, and complications related to diabetes. Intensive therapy for blood glucose levels, lipids, and blood pressure probably would seem indicated, but he also had major cognitive defects. Under these circumstances, he could not monitor therapy, intensive treatment poses too much risk for side effects, falls, or further cognitive decline.

TreatMent She's best untreated, Dr. Flores has received research funding from Merck & Co., a maker of diabetes medications.