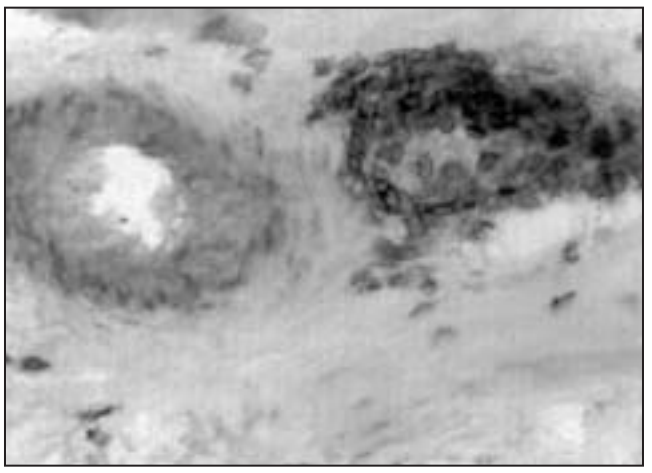
Sural Nerve Biopsy Aids Diabetic Neuropathy Tx

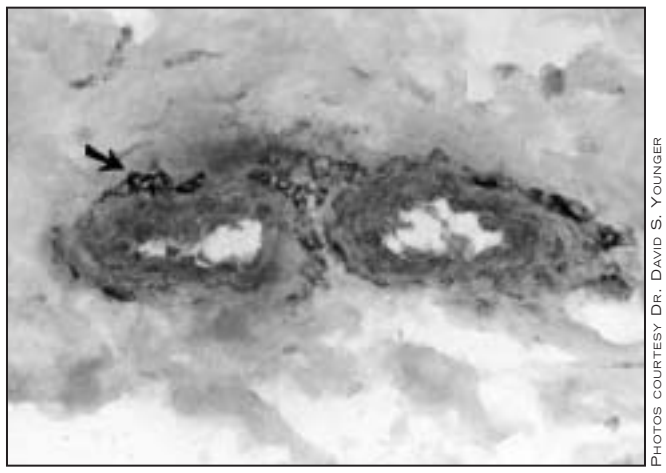
BY MICHELE G. SULLIVAN
Mid-Atlantic Bureau

WASHINGTON — Sural nerve biopsy may be indicated in patients with refractory diabetic neuropathy, because they may have neural inflammation that responds to intravenous immunoglobulin, Dr. David S. Younger reported in a poster at the annual meeting of the American Association of Neuromuscular and Electrodiagnostic Medicine.

"Diabetes itself is a partially autoimmune process, or leads to the development of immunological changes," Dr. Younger said in an interview. "Diabetic neuropathy is emerging as a disease mediated by autoimmunity and, therefore, it appears to respond to immunomodulating treatment—especially the neuropathic pain."



In this specimen, microvasculitis with lymphocytic T-cell infiltration of peripheral nerve neuropathy is visible.



This photo shows lymphocytic T-cell infiltration in perivasculitis of peripheral nerve microvessels.

PHOTOS COURTESY DR. DAVID S. YOUNGER

In 1996, Dr. Younger, of New York University Medical Center, and his colleagues at Columbia University in New York, reported CD8-positive T cell infiltration in and around the walls of peripheral nerve microvessels in patients with diabetic neuropathy. They also noted inflammatory intermediate cytokines and activated C5b-9 membrane attack complex (MAC) in the endoneurium in the majority of the patients they studied. The researchers concluded that cell and humoral mediated immunologic mechanisms might be contributing to the pathogenesis of diabetic neuropathy (Muscle Nerve 1996;19:722-7).

At the meeting, Dr. Younger presented a 10-year review of 111 diabetic patients (aged 31-95 years) with neuropathic pain, progressive motor weakness, and disability characterized by distal symmetric polyneuropathy or proximal neuropathy, and 3 patients with mononeuritis multiplex. All underwent sural nerve biopsies to assist in management.

Axonopathy was present in 45 nerves, and myelinopathy in 23; 16 nerves met clinical and pathologic criteria for chronic inflammatory demyelinating polyneuropathy. Twenty-nine nerves showed inflammation in the microvasculature, including perivasculitis (26), microvasculitis (3), and necrotizing arteritis (3).

Twenty-nine patients with microvascular inflammation and/or chronic demyelinating polyneuropathy received immunotherapy with intravenous immunoglobulin in a regimen of 2 g/kg per month for 3-6 months. During follow-up phone interviews, all reported significant improvement in neuropathic pain.

There's little to lose by performing a nerve biopsy on patients whose diabetic neuropathy pain is poorly controlled on medication, Dr. Younger said. "Sural nerve biopsy is relatively safe, and it assists in the selection of patients who might benefit from immunotherapy." ■

Infants Are Not Receiving Recommended Vitamin D

BY MARY ELLEN SCHNEIDER
New York Bureau

RENO, NEV. — Infants—especially breast-fed infants—at an increased risk for type 1 diabetes aren't getting the recommended levels of vitamin D in their diets, despite efforts to publicize the relationship between type 1 diabetes and insufficient vitamin D, according to a poster presented at the annual meeting of the American College of Nutrition.

Given the reported association between low intake of vitamin D and higher risk for type 1 diabetes, researchers with the Environmental Determinants of Diabetes in the Young (TEDDY) study decided to assess the vitamin D intake of children aged 3-12 months who possess a genetic predisposition to the autoimmunity associated with type 1 diabetes. The dietary intake of the infants was compared with recommendations for vitamin D intake from the American Academy of Pediatrics (AAP).

The researchers analyzed vitamin D intake for 342 infants from the TEDDY centers in Colorado, Georgia, and Florida. Fewer than half of the children in the study (49%) met AAP guidelines for vitamin D intake at 3 months, and 56% met guidelines at 6 months. But compliance with the AAP recommendations increased over time. By 9 months of age, the percentage of infants meeting AAP recommendations for vitamin D intake increased to 73% and continued to rise to 79% by 12 months.

The current AAP recommendation calls for infants to receive 200 IU of vitamin D daily within the first 2 months of life. Infants and children who consume at least 500 mL per day of vitamin D–fortified formula or milk should meet the recommended intake, but vitamin D supplementation is necessary in breast-fed infants, according to the AAP (Pediatrics 2003;111:908-10).

The TEDDY researchers found that infants with very low intakes of vitamin D were predominantly breast fed. Many infants who were primarily formula-fed had vitamin D intakes that were twofold higher than the AAP recommendations. And some formula-fed infants with very large energy intakes were receiving three- to fourfold more than the AAP's recommended daily intake of vitamin D, the researchers wrote.

These preliminary results are based on dietary intake data collected between September 2004 and July 2006. The researchers collected 24-hour diet recall and 3-day food diaries from the primary caretakers. The data collection is ongoing.

The study is funded by the National Institutes of Health, the Centers for Disease Control and Prevention, and the Juvenile Diabetes Research Foundation. ■

Gestational Diabetes May Be an Independent Risk Factor for CVD

BY MIRIAM E. TUCKER
Senior Writer

Women who are diagnosed with gestational diabetes during pregnancy may be at greater risk for cardiovascular events later in life, reported Dr. Darcy B. Carr and her associates, of the University of Washington, Seattle.

Previous studies have demonstrated that women with a history of gestational diabetes mellitus (GDM) are at increased risk for a wide array of cardiovascular risk factors, including central adiposity, insulin resistance, dyslipidemia, and hypertension. Now, data from the Genetics of Non–Insulin-Dependent Diabetes (GENNID) study suggest that among women with a family history of type 2 diabetes, these risk factors actually translate into a significantly higher prevalence of cardiovascular disease events in those with prior GDM.

"Interventions have been shown to reduce the progression to type 2 diabetes in subjects at risk for the disease, including women with a history of GDM, and offer primary prevention of cardiovascular disease (CVD) events in established type 2 diabetes. We believe our findings provide a strong rationale to further consider efforts to target women who have a history of GDM with interventions in order to improve both their metabolic and cardiovascular health," Dr. Carr and her associates wrote (Diabetes Care 2006;29:2078-83).

In GENNID, genetic and phenotypic information was collected at multiple U.S. sites between 1993 and 2001 from families with type 2 diabetes. Among parous women in the study who had a first-degree relative with type 2 diabetes but who did not have pregestational diabetes themselves, a total of 332 reported having had GDM during at least one previous pregnancy, compared with 662 who did not.

At a mean follow-up of 30 years after the index pregnancy, the women with prior GDM were younger (49 vs. 52 years) and more likely to be African American (40% vs. 29%) than were those without GDM.

Although both groups were obese, women in the prior GDM group had a more atherogenic lipid profile and higher fasting plasma glucose and insulin levels, suggesting increased insulin resistance. Among the risk factors that were reported by significantly more women in the GDM group were history of hypertension (47% vs. 37%), dyslipidemia (34% vs. 26%), and type 2 diabetes (93% vs. 63%). Among women who had these risk factors, those with GDM were diagnosed with them at younger ages.

Women with GDM were more than three times as likely as those without to meet all the criteria for metabolic syndrome, even after adjusting for age, menopausal status, and race/ethnicity, Dr. Carr and her associates reported.

Self-reported history of cardiovascular disease (coronary artery disease [CAD] and/or stroke) was significantly more common in women with prior GDM and remained significant after adjustment for race/ethnicity, age, and menopausal status. Overall cardiovascular disease was reported by 15.5% with GDM, compared with 12% without, CAD by 12% vs. 11%, and stroke by 6% vs. 5%. The CVD and CAD differences were statistically significant, but stroke was not, due to small numbers of patients, they said.

Among the 890 women for whom complete data for metabolic syndrome criteria were available, a history of GDM was associated with an independent risk for CVD after adjustment for metabolic syndrome (OR 1.74) and for type 2 diabetes (OR 1.56). ■

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