Exenatide Delivery Device Shows Promise

BY DOUG BRUNK

FROM THE ANNUAL SCIENTIFIC SESSIONS OF THE AMERICAN DIABETES ASSOCIATION

SAN DIEGO – Treatment with the investigational device ITCA 650 delivering exenatide at 20 mcg/day and dose escalation to 60 mcg/day was well tolerated and led to significant reductions in hemoglobin A_{1c} and body weight in patients with type 2 diabetes, results from a phase II, 48-week extension study showed.

ITCA 650 is manufactured by Intarcia Therapeutics of Hayward, Calif., and is a matchstick-size, osmotic minipump using the DUROS technology that is placed subcutaneously, providing continuous and consistent delivery of exenatide (Byetta) at specified doses. The device is inserted during a 10- to 15-minute office procedure. ITCA 650 has been shown to be effective in lowering HbA_{1c} and having a favorable weight profile at 12 and 24 weeks, Dr. Julio Rosenstock said at the meeting, where he presented the results of the 48-week extension of the study that demonstrated sustained effects.

"Therefore, this device has the potential for greater adherence using ITCA 650 devices that can deliver 6 or 12 months of treatment with a single placement," said Dr. Rosenstock, director of the Dallas Diabetes and Endocrine Center at Medical City and the study's principal investigator. "It also may result in enhanced efficacy and a reduced side effect profile."

In a trial conducted at 50 sites, 155 patients treated with metformin who had baseline HbA_{1c} levels between 7% and 10% were enrolled in a 24-week study and were randomized to receive ITCA 650 at 20, 40, 60, or 80 mcg/day following an initial 12 weeks of either ITCA 650 (20 or 40 mcg/day) or exenatide injections (10 mcg b.i.d. self-injection). At week 24, Dr. Rosenstock and his associates offered patients the option to continue treatment at their current dose for an additional 12 weeks. A total of 86 patients from 35 of the original 50 sites entered the extension study.

Dr. Rosenstock reported that continued reductions in HbA_{1c} and weight were observed across all ITCA 650 treatment arms at week 48, compared with week 24, with the greatest reductions seen in the 60-mcg/day and 80-mcg/day arms. Between baseline and week 48 the mean HbA_{1c} improved 1% in the 20-mcg/day arm (from 7.8% to 6.8%), 1% in the 40-mcg/day arm (from 7.8% to 6.8%), 1.5% in the 60-mcg/day arm (from 8.1% to 6.6%), and 1.4% in the 80-mcg/day arm (from 7.9% to 6.5%). Weight reductions were observed in all treatment arms (mean reductions of 6, 10.8, 7.7, and 7.9 pounds, respectively).

There were no treatment discontinuations between weeks 24 and 48 in the group initially treated with 20 mcg/day and then escalated to 60 mcg/day, Dr. Rosenstock said. The chief side effects in all of the dose groups were nausea (10.5%) and diarrhea (3.5%). Other reported side effects were related to the skin at the placement site and included irritation (7%), pain (7%), erythema (4.7%), pruritus (3.5%), and hematoma (3.5%).

According to a prepared statement from Intarcia, a phase III study planned for 2011 will evaluate treatment regimens involving initial 12-week ITCA dosing at 20 mcg/day transitioning to 60 mcg/day thereafter using ITCA 650 devices of both 6- and 12-month duration.

Dr. Rosenstock has relationships with numerous pharmaceutical and device companies, including Intarcia Therapeutics, in the form of research support, advisory board roles, and consulting honorariums. ■

Risk of Hearing Loss Doubled In Patients With Diabetes

BY SHERRY BOSCHERT

FROM THE ANNUAL SCIENTIFIC SESSIONS OF THE AMERICAN DIABETES ASSOCIATION

SAN DIEGO – Hearing impairment was more than twice as likely in adults with diabetes compared with adults without diabetes in a meta-analysis of 13 observational studies.

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Major Finding: Adults with diabetes are more than twice as likely as those without diabetes to develop hearing loss.

Data Source: Meta-analysis of 13 studies comparing the prevalence of hearing impairment in people with or without diabetes, nine of which studied the general population and four of which studied hospital-based populations.

Disclosures: The investigators reported having no conflicts of interest.

Screening for hearing impairment for patients with diabetes may improve their ability to communicate and their quality of life, the investigators suggested.

Age-related hearing loss had been found associated with diabetes, but the study may be the first to quantify the strength of that association, Dr. Hirohito Sone, Chika Horikawa, and their associates reported at the meeting.

The findings suggest that diabetes contributes to the progression of hearing impairment, though the biological or pathological mechanisms of this are not known, said Dr. Sone, professor of medicine at the University of Tsukuba Mito Medical Center, Ibaraki, Japan, where Ms. Horikawa also is based. They speculated that neuropathy or vascular disease may contribute to the hearing loss.

Eight of the 13 studies were conducted in Asia and five in Western countries. A total of 20,061 participants were included, 7,797 of whom had diabetes. Nine studies focused on the general population and four focused on hospital-based patients.

The studies looked for nonidiopathic progressive hearing impairment that was not due to noise or heredity. Hearing impairment was defined by cutoff values of pure-tone thresholds measured at a frequency range that included 2,000 Hz. Three of the studies matched patients with and without diabetes by age and sex.

Overall, diabetes was associated with a doubling in the odds of developing hearing impairment, the meta-analysis found. The risk was higher for younger adults or hospital-based patients.

In subjects younger than 60 years, hearing impairment was three times more common in those with diabetes than in those without diabetes. Hospital-based patients had nearly a fourfold increased risk for hearing impairment if they had diabetes.

In all subsets of participants, there was a positive association between diabetes and hearing impairment.

Further research might focus on potential relationships between diabetes severity or duration and the likelihood of hearing impairment, whether people with diabetes have an earlier onset of age-related hearing impairment, and whether good glycemic control might prevent the progression of hearing loss. ■

Life Expectancy Improving for People With Type 1 Diabetes

BY DOUG BRUNK

FROM THE ANNUAL SCIENTIFIC SESSIONS OF THE AMERICAN DIABETES ASSOCIATION

SAN DIEGO – Life expectancy of patients with type 1 diabetes has improved dramatically since 1950, results from a long-term prospective study have shown.

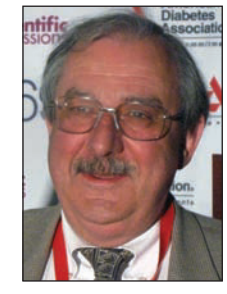
According to the Pittsburgh Epidemiology of Diabetes Complications (EDC) Study, life expectancy at birth for those diagnosed with type 1 diabetes during 1965-1980 was 68.8 years, or about 4 years less than that of a comparable cohort of the U.S. general population, while life expectancy for those diagnosed during 1950-1964 was 53.4 years, or about 18 years less than that of a comparable cohort of the general population.

"Individuals with childhood-onset diabetes do not represent a major insurance risk and should be minimally penalized, if at all, in terms of life insurance and other mortality-based decisions," Dr. Trevor J. Orchard, professor of epidemiology, pediatrics, and medicine at the University of Pittsburgh, said at the meeting.

The objective of the current study was to compare the life expectancy of two different cohorts of patients enrolled in the Pittsburgh EDC Study, a prospective study of childhood-onset type 1 diabetes. Of the 933 patients, 390 were diagnosed or seen within 1 year of diagnosis at Children's Hospital of Pittsburgh during 1950-1964 (cohort 1), while 543 were diagnosed or seen within a year of diagnosis during 1965-1980 (cohort 2). Half of the participants were female, and their mean age at diagnosis was 8 years. All were followed through 2009.

To ascertain mortality, the researchers used death certificates and hospital, autopsy, and coroner reports.

Dr. Orchard reported that the 30-year mortality for patients in cohort 1 was 35% compared with 12% for those in cohort 2. Similarly, the life expectancy at birth for those in cohort 1 was estimated to be 53.4 years compared with 68.8 years for those in cohort 2, a difference of about 15 years. Both differences were significant. This persisted regardless of sex or pubertal status at diagnosis of diabetes.



'Individuals with childhood-onset diabetes do not represent a major insurance risk.'

DR. ORCHARD

The life expectancy of cohort 2 is 3.6 years less than that estimated for a comparable cohort of the U.S. general population (72.4 years), Dr. Orchard said, while the life expectancy of cohort 1 is about 18 years less than that of a comparable cohort of the general population (71.5 years).

Reasons for the improvement in life expectancy between the two cohorts are multifactorial, he said, including the development of blood glucose self-monitoring and the use of the hemoglobin A_{1c} test, which was not available in cohort 1.

Dr. Orchard is a consultant for AstraZeneca and Abbott, received research support from VeraLight, and has inherited Bristol-Myers Squibb stock. ■

To view an interview with Dr. Orchard, scan this using your smartphone.