One-Quarter of Diabetic Children Present With DKA

BY MIRIAM E. TUCKER

SAN DIEGO — One-fourth of children with diabetes present with diabetic ketoacidosis at onset, and a majority are hospitalized, Arletta B. Rewers, M.D., reported at the annual scientific sessions of the American Diabetes Association.

Younger and poorer children are more likely to present with diabetic ketoacidosis (DKA), according to a study of 824 children and adolescents younger than 20 years of age who were diagnosed with diabetes in 2002 in four U.S. geographical areas and two large HMOs, said Dr. Rewers, an emergency physician at the Children's Hospital, Denver.

Of the 824 children with new-onset diabetes, 57% were hospitalized while just 12% had an emergency department visit only. Diabetic ketoacidosis, defined as a bicarbonate level of less than 15 mmol/L and/or a pH less than 7.25 (or less than 7.3 if arterial or capillary blood was obtained), was present in 24%. No significant differences in DKA rates by gender or race/ethnicity were found, Dr. Rewers reported.

The proportion presenting with DKA decreased significantly with increasing age, from 36% of children aged 0-4 years down to 16.5% of adolescents aged 15-19 years. Among those diagnosed as having type 1 diabetes, the prevalence of DKA was 28%, more than double the prevalence in children diagnosed with type 2 diabetes (13%) or an unknown type (12%).

Lower parental income and lower parental educational achievement were significantly associated with an increased likelihood of the child presenting with DKA. After adjustment for clinic, gender, race/ethnicity, diabetes type, and insurance coverage, children aged 0-4 years were 5.6 times more likely than older children to present with DKA, while those with annual family incomes less than $55,000 had a risk for DKA that was five times greater than that of children whose parents made between $75,000 and $100,000 a year, she said.

Death Rates for Diabetic Ketoacidosis Decline Overall

BY MIRIAM E. TUCKER

SAN DIEGO — Deaths from diabetic ketoacidosis among adults in the United States have decreased by one-third between 1984 and 2002, Jing Wang and her associates reported in a poster at the annual scientific sessions of the American Diabetes Association.

There was no decline, however, in diabetic ketoacidosis (DKA) deaths among black men, and a large proportion of DKA deaths continue to occur at home or prior to arrival at the emergency department, said Ms. Wang, a health care analyst with Northrop Grumman/Information Technology, supporting the division of diabetes translation at the Centers for Disease Control and Prevention, Atlanta.

The data were derived from vital records of patients with diabetes seen in 1984-1998 using ICD-9 codes and in 1999-2002 using ICD-10 codes. Estimates of the U.S. diabetic population came from the National Health Interview Survey.

Between 1984 and 2002, the age-adjusted DKA death rate dropped from 30.5 to 20.5 per 100,000 diabetes. Declines occurred in all age groups, ranging from a 65% drop among individuals aged 65 and older to a 22% drop among those aged 18-44.

Age-adjusted DKA death rates declined by 18% among white men, 35% among white women, and 46% among black women. The rates for black men, on the other hand, decreased essentially unchanged, averaging at least twice that of the other groups, the investigators noted.

In 2002, 52% of DKA deaths occurred in the hospital, 12% in emergency departments/outpatient clinics, 26% at a residence, and 10% in other places.

From 1992 (the first year for which place-of-death data were available) through 2002, DKA death rates declined in all health care sites, dropping by 49% in hospitals, 38% in emergency departments/outpatient clinics, and 59% in nursing homes. For all health care sites combined, the DKA death rate dropped from 10.3 per 100,000 from 1992 to 2002.

However, the rate of DKA deaths occurring at the patient’s residence remained essentially unchanged between 1992 (3.1/100,000) and 2002 (3.7/100,000).

The number of DKA deaths still occurring at home is of concern, particularly since the condition is both preventable and treatable. “A better understanding of how to prevent their occurrence is essential,” the investigators wrote.

One-Quarter of Diabetic Children Present With DKA

BY MIRIAM E. TUCKER

SAN DIEGO — One-fourth of children with diabetes present with diabetic ketoacidosis at onset, and a majority are hospitalized, Arleta B. Rewers, M.D., reported at the annual scientific sessions of the American Diabetes Association.

Of the 824 children with new-onset diabetes, 57% were hospitalized while just 12% had an emergency department visit only. Diabetic ketoacidosis, defined as a bicarbonate level of less than 15 mmol/L and/or a pH less than 7.25 (or less than 7.3 if arterial or capillary blood was obtained), was present in 24%. No significant differences in DKA rates by gender or race/ethnicity were found, Dr. Rewers reported.

The proportion presenting with DKA decreased significantly with increasing age, from 36% of children aged 0-4 years down to 16.5% of adolescents aged 15-19 years. Among those diagnosed as having type 1 diabetes, the prevalence of DKA was 28%, more than double the prevalence in children diagnosed with type 2 diabetes (13%) or an unknown type (12%).

Lower parental income and lower parental educational achievement were significantly associated with an increased likelihood of the child presenting with DKA.

After adjustment for clinic, gender, race/ethnicity, diabetes type, and insurance coverage, children aged 0-4 years were 5.6 times more likely than older children to present with DKA, while those with annual family incomes less than $55,000 had a risk for DKA that was five times greater than that of children whose parents made between $75,000 and $100,000 a year, she said.

Prevalence of DKA in Children With Diabetes

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Type 2</th>
<th>Type unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>28%</td>
<td>13%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Source: Dr. Rewers