Diabetic Ketoacidosis Costs Up

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AMSTERDAM — Direct medical costs for diabetic ketoacidosis in children and adolescents in the United States totaled approximately $258 million in 2006, Dr. Arleta Rewers and Dr. Marian Rewers reported in a poster at the annual meeting of the European Association for the Study of Diabetes.

The figure, which breaks down to about $73 million for cases occurring at the onset of diabetes and $185 million for already established cases, represents an increase of approximately 40% from 1995, when the total cost was $184 million ($48 million for new-onset diabetes patients and $136 million for established diabetes patients), said Dr. Arleta Rewers, a pediatric emergency physician, and Dr. Marian Rewers, a pediatric endocrinologist, both at the Children's Hospital, Denver, and the University of Colorado at Denver.

Total direct medical costs were 67% higher for patients who were at the onset of diabetes than for those patients who had established diabetes.

Those overall U.S. data were extrapolated from the 1,093 validated cases of diabetic ketoacidosis (DKA) among 777 patients seen at the Children's Hospital, Denver, during 1995-2006. The median age at DKA was 12.0 years (range 0-19 years). Slightly more than half (55%) were female. Overall, 23% of patients were treated in the emergency department, 12% were in the observation unit (staying less than 24 hours), and 65% were hospitalized for a median of 1 day (range 1-61 days).

Total direct medical costs, including hospital charges and professional fees, were 67% higher for patients at the onset of diabetes (which was when 49% of all diabetic ketoacidosis events occurred) than for patients with established diabetes, with a median of $10,890 versus $8,010 for the entire 11-year period.

Two-thirds (66%) of the patients had private insurance or were covered through a health maintenance organization, 27% had government insurance or indigent coverage, and 7% were uninsured. Among those with new-onset diabetes, having indigent coverage or no insurance predicted a nearly fourfold higher cost of diabetic ketoacidosis treatment, after adjustment for gender, ethnicity, and age. In contrast, there was no relationship between insurance status and the cost of diabetic ketacidosis among patients with established diabetes, the two researchers reported.

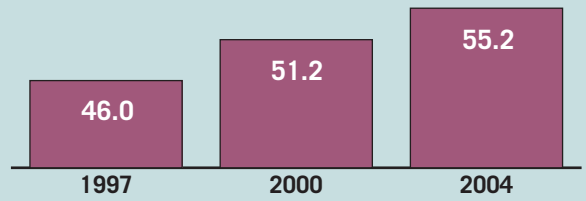
After adjustment for inflation, the median direct cost of diabetic ketoacidosis treatment increased 20% from 1995-96 ($8,836) to 2005-06 ($10,551).

The cost extrapolations to the entire U.S. population were based on four sets of data: a previous study suggesting that the prevalence of diabetic ketoacidosis in newly diagnosed youth is approximately 25.5%; another finding that the incidence of diabetic ketoacidosis in patients with established diabetes is 8 per 100 patients per year; estimates of the prevalence and incidence of diabetes among youth from the SEARCH for Diabetes in Youth study database; and U.S. census population data.

The reason that diabetic ketoacidosis is more costly in newly diagnosed cases—especially those with suboptimal insurance—is likely because of more severe presentation and lower family resources for transition to outpatient management, the researchers said. ■

DATA WATCH

U.S. Hospital Admissions for Short-Term Diabetes Complications Increasing in Adults
(rate per 100,000 population)



Note: Based on data for diabetic ketoacidosis, hyperosmolarity, and coma.
Source: Healthcare Cost and Utilization Project

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