

## Many Kids with Type 1 Diabetes Have Ketoacidosis at Diagnosis

In recent years, close to half of young patients with type 1 diabetes in Colorado have had diabetic ketoacidosis (DKA) when their diabetes was diagnosed, according to a research letter in *The Journal of the American Medical Association*.

The researchers analyzed 3439 patients diagnosed with type 1 diabetes before age 18 between 1998 and 2012. All were followed up at a Denver center

that serves more than 80 percent of diabetic youth in Colorado. Rates, trends, and risk factors for DKA at diagnosis were assessed.

Overall, 38.9 percent of patients had DKA at the time of diabetes diagnosis. Incidence of DKA at diagnosis increased from 29.9 percent in 1998, to 35.0 percent in 2007, to 46.2 percent in 2012. The percentage of patients on public insurance increased from 17.1 percent in

2007 to 37.5 percent in 2012.

Incidence of DKA at diagnosis was higher for younger and African American patients, and lower for those with private insurance or with a first-degree relative affected by type 1 diabetes. In recent years, incidence increased to a larger extent among children with private insurance.

The study suggests rising rates of DKA at diagnosis of type 1 diabetes,

consistent with diagnosis and treatment. The authors note the incidence is similar to that reported in countries with poor health care access, and much higher than in Canada or the United Kingdom. The recent trends may be related to a rising prevalence of child poverty [Rewers A, et al: Incidence of diabetic ketoacidosis at diagnosis of type 1 diabetes in Colorado youth, 1998–2012. *JAMA* 2015; 313:1570–1572]. ●

## No Difference in Response to Nitrofurantoin with Reduced Kidney Function

Mild to moderate reductions in kidney function don't alter the treatment failure rate of nitrofurantoin in older women with urinary tract infections, concludes a report in the *Canadian Medical Association Journal*.

Using Ontario health databases, the researchers identified a cohort of 9223 older women with reduced kidney function receiving one of four oral antibiotics commonly used for reduced urinary tract infections: nitrofurantoin, ciprofloxacin, norfloxacin, or trimethoprim/sulfamethoxazole (TMP-SMX). The

women's median age was 79 years and median estimated glomerular filtration rate (eGFR) 38 mL/min/1.73 m<sup>2</sup>.

Fourteen-day treatment failure rates were examined in terms of need for a second antibiotic or hospital encounter for urinary tract infection. The same outcomes were assessed in a cohort of 182,634 women with relatively high eGFR: median 69 mL/min/1.73 m<sup>2</sup>.

Women receiving the four antibiotics had similar baseline characteristics. Among those with low eGFR, failure rates were significantly higher with ni-

trofurantoin compared to ciprofloxacin and norfloxacin (but not TMP-SMX).

However, analysis of the cohort with relatively high eGFR revealed a similar pattern of higher treatment failure rates with nitrofurantoin. Compared to nitrofurantoin, adjusted odds ratios for a second prescription with ciprofloxacin were 0.43 for women with lower kidney function and 0.50 for those with higher kidney function.

Previous reports have suggested subtherapeutic concentrations of nitrofurantoin in patients with reduced kid-

ney function, leading to the suggestion that this antibiotic be avoided when the eGFR is less than 40 mL/min/1.73 m<sup>2</sup>. The new analysis finds no increase in the nitrofurantoin failure rate in older women with mild to moderate reductions in kidney function. Regardless of eGFR, treatment failure is more likely with nitrofurantoin than with other antibiotic choices [Singh N, et al: Kidney function and the use of nitrofurantoin to treat urinary tract infections in older women. *CMAJ* 2015. DOI:10.1503/cmaj.150067]. ●

## High CPR Rates, Poor Survival in Dialysis Patients

Hemodialysis patients have a high rate of in-hospital cardiopulmonary resuscitation (CPR), with low rates of long-term survival after CPR, according to a study in *JAMA Internal Medicine*.

Rates and outcomes of in-hospital CPR were assessed in 663,734 Medicare beneficiaries who started maintenance dialysis from 2000 through 2010, identified from the US Renal Data System registry. All hospital admissions and in-hospital CPR events

occurring more than 90 days after dialysis initiation were assessed, along with survival to hospital discharge after the first CPR event.

In this national cohort, the annual incidence of CPR was 1.4 events per 1000 hospital days. Survival to discharge after CPR was 21.9 percent; median survival after discharge was 5.0 months. About 15 percent of patients who died in the hospital underwent CPR during that admission.

The incidence of in-hospital CPR events per 1000 in-hospital days increased from 1.0 in 2000 to 1.6 in 2011, while the percentage of patients surviving to discharge increased from 15.2 percent to 28.0 percent. The percentage of in-hospital deaths with CPR during the terminal hospitalization increased from 9.5 percent to 19.8 percent. There was no change in postdischarge survival after CPR.

These national data suggest a rising

incidence of in-hospital CPR among hemodialysis patients, despite poor survival after CPR. The researchers conclude, "These findings support the relevance of advance care planning and setting realistic expectations regarding resuscitation treatment in this population [Wong SPY, et al: Trends in in-hospital cardiopulmonary resuscitation and survival in adults receiving maintenance dialysis. *JAMA Intern Med* 2015; doi: 10.1001/jamainternmed.2015.0406]. ●

## Minority Patients Have Lower Rates of Fistula Access

African American and Hispanic patients are less likely to have an arteriovenous fistula (AVF) in place when starting hemodialysis, compared to white patients with similar characteristics, reports a study in *JAMA Surgery*.

The analysis included US Renal Data System data on 396,075 patients initiating hemodialysis from 2006 through 2010. Multivariable analysis and propensity-score matching were used to compare hemodialysis access rates—including AVF, arteriovenous graft, and intravascular hemodialysis catheter—for patients of different racial/ethnic groups but otherwise similar characteristics.

An AVF was in place at the start of

hemodialysis for 18.3 percent of white patients, compared to 15.5 percent of African American and 14.6 percent of Hispanic patients. This was so even though the minority patients were younger and had lower rates of comorbid conditions: coronary artery disease, chronic obstructive pulmonary disease, and cancer.

Odds ratios for AVF access were 0.90 for uninsured and 0.85 for insured African American patients, and 0.72 for uninsured and 0.81 for insured Hispanic patients. The difference was significant even among the subgroup of patients who had been under a nephrologist's care for more than one year: odds ratio 0.81 for African American

and 0.86 for Hispanic patients.

The results show persistent racial/ethnic disparities in the presence of an AVF for initial hemodialysis access in the United States. The lower rates of AVF access among African American and Hispanic patients are independent of insurance status, nephrology care, and other factors driving fistula placement. "The sociocultural underpinnings of these disparities deserve investigation and redress to maximize the benefits of initiating hemodialysis via fistula in patients with end-stage renal disease irrespective of race/ethnicity," the investigators conclude [Zarkowsky DS, et al: Racial/ethnic disparities as-

sociated with initial hemodialysis access. *JAMA Surg* 2015; doi:10.1001/jamasurg.2015.0287]. ●

