609. Acute Kidney Injury During Treatment with Intravenous Acyclovir (AKITA) for Suspected Neonatal Herpes Simplex Virus Infection

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Background. Acute kidney injury (AKI) can develop within 1–2 days of starting acyclovir (ACV) due to crystal nephropathy, but the epidemiology of acyclovir-associated AKI in infants is not well described. Our objective was to detail the incidence and timing of AKI among acyclovir-exposed infants.

Methods. We identified all hospitalized infants age <60 days treated with ≥1 dose of IV ACV for suspected or confirmed neonatal HSV disease from January 2013 to December 2015 at four US hospitals. Subjects were included if they had both a baseline (lowest value obtained before initiation of acyclovir) and follow-up serum creatinine (Scr) obtained at least once dose of acyclovir (Day 0) through 48 hours after completion) recorded. Infants with congenital kidney disease were excluded. We defined AKI using Kidney Disease: Improving Global Outcomes (KDIGO) criteria: ≥50% increase from baseline, or ≥0.3 mg/dL change within any 48-hour period.

Results. We identified 3,374 infants who received IV acyclovir, 1,535 of whom (45.9%) had Scr as defined for inclusion in our analyses (range 52–898 infants per hospital); 50% were white, 44% were female, and the median gestational age was 37 weeks (IQR 35–39). On acyclovir Day 0, the median age was 6 days (IQR 2–18), and 50.0% (n = 768) were admitted to the NICU. The median acyclovir dose was 59.5 mg/kg/day (range 2.8–81). Thirteen infants had AKI (VQR 3–6). Thirty-two infants had confirmed HSV disease (10 CNS, 14 disseminated, and eight skin, eye, and mucous membrane disease). In all, 96 infants (6.3%) had AKI detected after acyclovir initiation including 62 (64.5%) on Day 0, 20 (20.8%) on Day 1 or 2, and 14 (14.6%) on Day 3 or after Day 3. Of those with AKI on Day 1 or later, 41% (n = 14) had Stage 2 AKI (doubling of Scr or more from baseline). Seven of 32 (21.8%) infants with confirmed HSV had AKI including 4 on Day 0, 2 on Days 1–2, and 1 on Day 12.

Conclusion. The incidence of AKI among infants treated with IV acyclovir in our study was low. Most AKI was detected soon after acyclovir initiation, potentially owing to more severe illness at the start of treatment and/or drug toxicity, but AKI also developed later. Scr monitoring should be considered throughout acyclovir treatment in infants.