

Title of Abstract:

Serum Creatinine Nomogram of Preterm Infants < 34 Weeks Gestation Who Received 60 Seconds Delayed Cord Clamping at Birth

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Abstract Description:

Background:

Delayed cord clamping (DCC) has been shown to increase circulating blood volume, cardiac output, systolic blood pressure and urine output. It is unclear what effect, if any, DCC has on Serum Creatinine (SCr) clearance. SCr nomograms have been established in preterm infants in the pre-DCC era (Bateman 2015, Thayyil 2008).

Objective:

To describe a SCr nomogram in preterm newborns <34 weeks who received 60s DCC at birth.

Methods:

This is a single center retrospective analysis of preterm infants <34 weeks gestational age (GA) born between May 2013 and May 2016 who received 60 seconds of DCC. Every available SCr data was collected from birth to NICU discharge. We use the maximum creatinine value daily for the first two weeks and weekly thereafter to create our nomogram. Infants were stratified in two GA groups, 22-28 and 29-33 weeks GA. SCr was measured by modified Jaffe reaction using Roche Modular (2013-2015) and Roche Cobas 6000 (2015-2016) equipment.

Results:

Infant and Maternal demographics, exposure to nephrotoxic agents, infant interventions and outcomes are presented in Table 1. Similar to prior studies, we observed three phases of SCr

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change (initial, decline, and equilibrium), with variation between the two GA groups (Figure 1). In comparison to older GA infants, younger GA infants had a higher initial SCr, and a longer and more gradual decline to reach a baseline equilibrium, defined as SCr 0.27-0.32 mg/dl (SI: 24–28 μ mol) (Bateman 2015). In the less mature group, 50% of SCr reached a <0.32 mg/dl at 36-42 days of life while the more mature group 50% of SCr reached this level almost 2 weeks sooner at 22-28 days of life.

Conclusion:

Our nomogram reproduces the 3 phases of SCr change previously described pre-DCC. Infants <34 weeks GA receiving 60s DCC, in this early, small and single center experience, reach SCr <0.32 mg/dl 14-21 days earlier than prior study with similar GA stratification. It is unclear if this is attributable to DCC or other patient and practice characteristics at our center. SCr nomograms may require reappraisal in an era of DCC, and changing clinical practices (less intubation, antibiotic use, infection etc.) DCC related or not.

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