

Acute kidney injury in critically ill children and 5-year hypertension. Erin Hessey, Sylvie Perreault, Louise Roy, Marc Dorais et al. Pediatric Nephrology (2020) 35:1097-1107

OBJECTIVES: To develop a pediatric specific hypertension algorithm using administrative data & to evaluate association between acute kidney injury in ICU and hypertension at 5yr follow up.

DESIGN: Retrospective cohort study

SETTING: Two Paediatric ICUs in Montreal, Canada

METHODS: Diagnostic codes and outpatient prescriptions were incorporated into a stricter (Algorithm A only outpatient codes) and broader algorithm (Algorithm B – inpatient and outpatient hypertension diagnostic codes and medications). The prevalence of 5-year hypertension diagnosis by each definition was calculated and stratified by AKI.

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



RISK OF LONG-TERM HYPERTENSION IN CRITICALLY ILL CHILDREN WITH ACUTE KIDNEY INJURY

RESULTS

1978 children with median age – 4.3yrs, 44% female

Diagnosis of Hypertension and acute kidney injury (AKI):

Using algorithm B, 130 (7%) had hypertension while 112 (6%) were diagnosed using algorithm A at a median duration of 350 days after discharge. 325 children (16.4%) developed AKI.

AKI-Hypertension Association:

Using algorithm A and algorithm B children with AKI had higher risk of hypertension (Algorithm A AKI (12.3%) vs Non-AKI (4.4%), $p < 0.001$) (Algorithm B- AKI (14.2%) vs Non-AKI (5.1%), $p < 0.001$). Hypertension prevalence increased with worsening severity of AKI. On multivariate analysis, AKI was associated with >2 times the adjusted risk of hypertension after 5yrs.

CONCLUSION

Non-cardiac critically ill children have a higher prevalence of hypertension at 5yrs post discharge. Children with AKI are at over twice the risk for developing hypertension.

COMMENTS

This is the largest long term paediatric ICU hypertension outcomes study conducted till date. It highlights the importance of development of paediatric hypertension algorithms to aid in early detection and association of hypertension with exposures.

EXPERT COMMENT



“Acute kidney injury is no longer considered a “one-time” event. Long lasting consequences like hypertension, proteinuria and progression to chronic kidney disease are important consequences to be monitored on follow up.”

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Reference:

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