

## ***The Risks and Complications Associated with Acute Kidney Injury in the Preterm Infant***

### **References**

Askenazi DJ, Heagerty PJ, Schmicker RH, Griffin R, Brophy P, et al; PENUT Trial Consortium. Prevalence of acute kidney injury (AKI) in extremely low gestational age neonates (ELGAN). *Pediatr Nephrol*. 2020 Sep;35(9):1737-1748. doi: 10.1007/s00467-020-04563-x. Epub 2020 Jun 2. PMID: 32488672; PMCID: PMC8093091.

Askenazi DJ, Halloran BA, Heagerty PJ, Schmicker RH, Juul SE, et al; PENUT Trial Consortium. Urine acute kidney injury biomarkers in extremely low gestational age neonates: a nested case control study of 21 candidate urine biomarkers. *Pediatr Nephrol*. 2023 Apr;38(4):1329-1342. doi: 10.1007/s00467-022-05688-x. Epub 2022 Aug 1. PMID: 35913564; PMCID: PMC10798189.

Carmody JB, Charlton JR. Short-term gestation, long-term risk: prematurity and chronic kidney disease. *Pediatrics*. 2013 Jun;131(6):1168-79. doi: 10.1542/peds.2013-0009. Epub 2013 May 13. PMID: 23669525.

Carpenter J, Yarlagadda S, VandenHeuvel KA, Ding L, Schuh MP. Human Nephrogenesis can Persist Beyond 40 Postnatal Days in Preterm Infants. *Kidney Int Rep*. 2023 Nov 4;9(2):436-450. doi: 10.1016/j.ekir.2023.10.032. PMID: 38344733; PMCID: PMC10851065.

Charlton JR, Springsteen CH, Carmody JB. Nephron number and its determinants in early life: a primer. *Pediatr Nephrol*. 2014 Dec;29(12):2299-308. doi: 10.1007/s00467-014-2758-y. Epub 2014 Feb 1. PMID: 24488483.

Charlton JR, Baldelomar EJ, Hyatt DM, Bennett KM. Nephron number and its determinants: a 2020 update. *Pediatr Nephrol*. 2021 Apr;36(4):797-807. doi: 10.1007/s00467-020-04534-2. Epub 2020 Apr 29. PMID: 32350665; PMCID: PMC7606355.

Charlton JR, Harer MW, Swan C, Nielsen R. Immature megalin expression in the preterm neonatal kidney is associated with urinary loss of vitamin carrier proteins. *Pediatr Res*. 2019 Feb;85(3):405-411. doi: 10.1038/s41390-018-0261-z. Epub 2018 Dec 20. PMID: 30659269.

Charlton JR, Boohaker L, Askenazi D, Brophy PD, D'Angio C, et al; Neonatal Kidney Collaborative. Incidence and Risk Factors of Early Onset Neonatal AKI. *Clin J Am Soc Nephrol*. 2019 Feb 7;14(2):184-195. doi: 10.2215/CJN.03670318. Epub 2019 Jan 31. PMID: 31738181; PMCID: PMC6390916.

Chmielewski J, Chaudhry PM, Harer MW, Menon S, South AM, et al; Neonatal Kidney Collaborative. Documentation of acute kidney injury at discharge from the neonatal intensive care unit and role of nephrology consultation. *J Perinatol*. 2022 Jul;42(7):930-936. doi: 10.1038/s41372-022-01424-3. Epub 2022 Jun 8. PMID: 35676535; PMCID: PMC9280854.

Crump C, Sundquist J, Winkleby MA, Sundquist K. Preterm birth and risk of chronic kidney disease from childhood into mid-adulthood: national cohort study. *BMJ*. 2019 May 1;365:l1346. doi: 10.1136/bmj.l1346. PMID: 31043374; PMCID: PMC6490674.

Feeney A, Slagle CL, Harer MW, Charlton JR, Mohamed T, et al. Approaches to neonatal acute kidney injury consultation and follow-up: results of a provider survey. *J Perinatol*. 2024 May 28. doi: 10.1038/s41372-024-02016-z. Epub ahead of print. PMID: 38806633.

Goldstein SL, Mottes T, Simpson K, Barclay C, Muething S, et al. A sustained quality improvement program reduces nephrotoxic medication-associated acute kidney injury. *Kidney Int.* 2016 Jul;90(1):212-21. doi: 10.1016/j.kint.2016.03.031. Epub 2016 May 21. PMID: 27217196.

Harer MW, Charlton JR, Tipple TE, Reidy KJ. Preterm birth and neonatal acute kidney injury: implications on adolescent and adult outcomes. *J Perinatol.* 2020 Sep;40(9):1286-1295. doi: 10.1038/s41372-020-0656-7. Epub 2020 Apr 10. PMID: 32277164.

Harer MW, Rothwell AC, Richard LJ, Adegboro CO, McAdams RM. Renal tissue oxygenation after caffeine administration in preterm neonates. *Pediatr Res.* 2021 Dec;90(6):1171-1176. doi: 10.1038/s41390-021-01579-3. Epub 2021 May 18. PMID: 34006983.

Harer MW, Griffin R, Askenazi DJ, Fuloria M, Guillet R, et al. Caffeine and kidney function at two years in former extremely low gestational age neonates. *Pediatr Res.* 2024 Jan;95(1):257-266. doi: 10.1038/s41390-023-02792-y. Epub 2023 Sep 2. PMID: 37660176; PMCID: PMC11293578.

Harer MW, Askenazi DJ, Boohaker LJ, Carmody JB, Griffin RL, et al; Neonatal Kidney Collaborative (NKC). Association Between Early Caffeine Citrate Administration and Risk of Acute Kidney Injury in Preterm Neonates: Results From the AWAKEN Study. *JAMA Pediatr.* 2018 Jun 4;172(6):e180322. doi: 10.1001/jamapediatrics.2018.0322. Epub 2018 Jun 4. Erratum in: *JAMA Pediatr.* 2018 Jun 1;172(6):599. doi: 10.1001/jamapediatrics.2018.1141. PMID: 29610830; PMCID: PMC6137530.

Hinchliffe SA, Sargent PH, Howard CV, Chan YF, van Velzen D. Human intrauterine renal growth expressed in absolute number of glomeruli assessed by the disector method and Cavalieri principle. *Lab Invest.* 1991 Jun;64(6):777-84. PMID: 2046329.

Hingorani S, Schmicker R, Ahmad KA, Frantz ID, Mayock DE, et al; PENUT Trial Consortium; PENUT Primary Investigators and coauthors. Prevalence and Risk Factors for Kidney Disease and Elevated BP in 2-Year-Old Children Born Extremely Premature. *Clin J Am Soc Nephrol.* 2022 Aug;17(8):1129-1138. doi: 10.2215/CJN.15011121. Epub 2022 Jul 19. PMID: 35853728; PMCID: PMC9435989.

Iacobelli S, Guignard JP. When the progresses in neonatology lead to severe congenital nephron deficit: is there a pilot in the NICU? *Pediatr Nephrol.* 2022 Jun;37(6):1277-1284. doi: 10.1007/s00467-021-05338-8. Epub 2021 Nov 10. Erratum in: *Pediatr Nephrol.* 2022 Jun;37(6):1427-1428. doi: 10.1007/s00467-021-05412-1. PMID: 34761299.

Jetton JG, Boohaker LJ, Sethi SK, Wazir S, Rohatgi S, et al; Neonatal Kidney Collaborative (NKC). Incidence and outcomes of neonatal acute kidney injury (AWAKEN): a multicentre, multinational, observational cohort study. *Lancet Child Adolesc Health.* 2017 Nov;1(3):184-194. doi: 10.1016/S2352-4642(17)30069-X. PMID: 29732396; PMCID: PMC5933049.

Kraut EJ, Boohaker LJ, Askenazi DJ, Fletcher J, Kent AL; Neonatal Kidney Collaborative (NKC). Incidence of neonatal hypertension from a large multicenter study [Assessment of Worldwide Acute Kidney Injury Epidemiology in Neonates-AWAKEN]. *Pediatr Res.* 2018 Aug;84(2):279-289. doi: 10.1038/s41390-018-0018-8. Epub 2018 May 23. Erratum in: *Pediatr Res.* 2018 Aug;84(2):314. doi: 10.1038/s41390-018-0107-8. PMID: 29795211.

Lelièvre-Pégorier M, Vilar J, Ferrier ML, Moreau E, Freund N, et al. Mild vitamin A deficiency leads to inborn nephron deficit in the rat. *Kidney Int.* 1998 Nov;54(5):1455-62. doi: 10.1046/j.1523-1755.1998.00151.x. PMID: 9844121.

Meena J, Kumar J, Kocharlakota JP, Gupta H, Mittal P, et al. Acute Kidney Injury in Neonates: A Meta-Analysis. *Pediatrics.* 2024 Jul 1;154(1):e2023065182. doi: 10.1542/peds.2023-065182. PMID: 38872621.

Reidy KJ, Guillet R, Selewski DT, Defreitas M, Stone S, et al. Advocating for the inclusion of kidney health outcomes in neonatal research: best practice recommendations by the Neonatal Kidney Collaborative. *J Perinatol*. 2024 Jul 5. doi: 10.1038/s41372-024-02030-1. Epub ahead of print. PMID: 38969825.

Rodríguez MM, Gómez AH, Abitbol CL, Chandar JJ, Duara S, Zilleruelo GE. Histomorphometric analysis of postnatal glomerulogenesis in extremely preterm infants. *Pediatr Dev Pathol*. 2004 Jan-Feb;7(1):17-25. doi: 10.1007/s10024-003-3029-2. PMID: 15255031.

Sanderson K, Griffin R, Anderson N, South AM, Swanson JR, et al; Neonatal Kidney Collaborative (NKC) Research Committee. Perinatal risk factors associated with acute kidney injury severity and duration among infants born extremely preterm. *Pediatr Res*. 2024 Mar 4:10.1038/s41390-024-03102-w. doi: 10.1038/s41390-024-03102-w. Epub ahead of print. Erratum in: *Pediatr Res*. 2024 Jul 19. doi: 10.1038/s41390-024-03221-4. PMID: 38438550; PMCID: PMC11371939.

Starr MC, Boohaker L, Eldredge LC, Menon S, Griffin R, et al; Neonatal Kidney Collaborative. Acute Kidney Injury is Associated with Poor Lung Outcomes in Infants Born  $\geq 32$  Weeks of Gestational Age. *Am J Perinatol*. 2020 Jan;37(2):231-240. doi: 10.1055/s-0039-1698836. Epub 2019 Nov 18. PMID: 31739364; PMCID: PMC7408289.

Stoops C, Boohaker L, Sims B, Griffin R, Selewski DT, Askenazi D; on behalf of the National Kidney Collaborative (NKC). The Association of Intraventricular Hemorrhage and Acute Kidney Injury in Premature Infants from the Assessment of the Worldwide Acute Kidney Injury Epidemiology in Neonates (AWAKEN) Study. *Neonatology*. 2019;116(4):321-330. doi: 10.1159/000501708. Epub 2019 Aug 28. PMID: 31461717; PMCID: PMC6881521.

Stoops C, Stone S, Evans E, Dill L, Henderson T, et al. Baby NINJA (Nephrotoxic Injury Negated by Just-in-Time Action): Reduction of Nephrotoxic Medication-Associated Acute Kidney Injury in the Neonatal Intensive Care Unit. *J Pediatr*. 2019 Dec;215:223-228.e6. doi: 10.1016/j.jpeds.2019.08.046. PMID: 31761141; PMCID: PMC7393580.

Yzydorczyk C, Comte B, Cambonie G, Lavoie JC, Germain N, et al. Neonatal oxygen exposure in rats leads to cardiovascular and renal alterations in adulthood. *Hypertension*. 2008 Nov;52(5):889-95. doi: 10.1161/HYPERTENSIONAHA.108.116251. Epub 2008 Oct 13. PMID: 18852387.

Zhang Z, Quinlan J, Hoy W, Hughson MD, Lemire M, et al. A common RET variant is associated with reduced newborn kidney size and function. *J Am Soc Nephrol*. 2008 Oct;19(10):2027-34. doi: 10.1681/ASN.2007101098. PMID: 18820179; PMCID: PMC2551577.