**Supplementary Table 1**. Comparison of the levels of urinary biomarkers between critically ill neonates with and without acute kidney injury

|  |  |  |  |
| --- | --- | --- | --- |
|  | Non-AKI (n=208) | AKI (n=26) | *P* |
| Urinary albumina, g/g uCr | 0.17 [0.11-0.28] | 0.27 [0.17-0.65] | 0.002 |
| Urinary cystatin Ca, μg/mg uCr | 0.52 [0.17-1.31] | 1.56 [0.56-9.56] | 0.001 |
| Urinary nephrina, μg/mg uCr | 0.18 [0.07-0.36] | 0.47 [0.21-0.99] | <0.001 |
| Urinary albuminb, g/g uCr | 0.23 [0.14-0.38] | 0.30 [0.24-0.91] | 0.004 |
| Urinary cystatin Cb, μg/mg uCr | 0.84 [0.34-2.48] | 2.81 [0.67-38.56] | 0.001 |
| Urinary nephrinb, μg/mg uCr | 0.26 [0.11-0.60] | 0.82 [0.26-1.41] | 0.001 |

Values are median [interquartile range]. Probability values: The Mann-Whitney U test.

aThe initial values of urinary biomarkers from the samples collected on the first 24 hours admitted to NICU. bThe peak values of urinary biomarkers.

**Supplementary Table 2**. Comparison of demographic and clinical characteristics between survivors and non-survivors

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristics | Survivors (n=210) | Non-survivors (n=24) | *P* |
| Gestational age at birth, weeks | 35.7 [32.7-38.3] | 31.6 [30.2-35.8] | 0.001 |
| Birth weight, g | 2500 [1790-3212.5] | 1500 [1110-1900] | <0.001 |
| Male, n | 117 (55.7) | 13 (54.2) | 0.885 |
| SNAP, score | 7 [5-9] | 9 [6.25-11] | 0.007 |
| eGFRa, mL/min/1.73m2 | 25.9 [19.7-39.5] | 19.5 [17.1-26.5] | 0.023 |
| CPAPb, n | 82 (39.0) | 13 (54.2) | 0.189 |
| MVb, n | 34 (16.2) | 11 (45.8) | 0.002 |
| MV length, hours | 0 [0-0] | 0 [0-78.5] | 0.001 |
| Apneab, n | 48 (22.9) | 16 (66.7) | <0.001 |
| AKIb, n | 21 (10.0) | 5 (20.8) | 0.159 |
| AKI stageb, n |  |  |  |
| Stage 1 | 8 (3.8) | 2 (8.3) | 0.196 |
| Stage 2 | 7 (3.3) | 2 (8.3) |
| Stage 3 | 6 (2.9) | 1 (4.2) |
| RDSb, n | 36 (17.1) | 8 (33.3) | 0.092 |
| HIEb, n | 9 (4.3) | 1 (4.2) | 0.727 |
| Sepsisb, n | 17 (8.1) | 8 (33.3) | 0.001 |
| Surfactantb, n | 20 (9.5) | 3 (12.5) | 0.714 |
| Inotropeb, n | 18 (8.6) | 5 (20.8) | 0.069 |
| Furosemideb, n | 10 (4.8) | 3 (12.5) | 0.136 |
| Steroidb, n | 23 (11.0) | 3 (12.5) | 0.737 |
| Aminophyllineb, n | 13 (6.2) | 2 (8.3) | 0.685 |
| Antibioticb, n | 203 (96.7) | 24 (100) | 0.618 |
| Vancomycinb, n | 14 (6.7) | 1 (4.2) | 0.719 |

Values are median [interquartile range] or numbers (percentage).

AKI, acute kidney injury; CPAP, continuous positive airway pressure; eGFR, estimated glomerular filtration rate; HIE, hypoxic ischemic encephalopathy; MV, mechanical ventilation; NICU, neonatal intensive care unit; RDS, respiratory distress syndrome; SNAP, the score for neonatal acute physiology.

aBased on Schwartz formula for term or preterm infants. The serum creatinine was taken on the first day of NICU admission in neonates with postnatal age at admission >48h, and on the 3th-5th day in neonates with postnatal age at admission ≤48h. bAdministered or developed during NICU stay.

**Supplementary Table 3**. Comparison of the levels of urinary biomarkers between survivors and non-survivors

|  |  |  |  |
| --- | --- | --- | --- |
|  | Survivors (n=210) | Non-survivors (n=24) | *P* |
| Urinary albumina, g/g uCr | 0.17 [0.11-0.28] | 0.43 [0.25-0.71] | <0.001 |
| Urinary cystatin Ca, μg/mg uCr | 0.50 [0.17-1.15] | 2.70 [1.34-20.47] | <0.001 |
| Urinary nephrina, μg/mg uCr | 0.17 [0.07-0.33] | 0.76 [0.39-1.35] | <0.001 |
| Urinary albuminb, g/g uCr | 0.17 [0.11-0.28] | 0.45 [0.28-0.89] | <0.001 |
| Urinary cystatin Cb, μg/mg uCr | 0.51 [0.18-1.21] | 5.23 [1.34-22.43] | <0.001 |
| Urinary nephrinb, μg/mg uCr | 0.18 [0.07-0.33] | 0.83 [0.39-1.43] | <0.001 |

Values are median [interquartile range]. Probability values: The Mann-Whitney U test.

aThe initial values of urinary biomarkers. bThe peak values of urinary biomarkers.



**Supplementary Fig 1.** Correlation analysis of data from non-AKI neonates (n=208). There was a significant correlation between gestational age at birth and the initial (A: R2=0.23, *P*<0.001) or peak (B: R2=0.47, *P*<0.001) urinary nephrin levels. Statistical analysis: Spearman’s test.



**Supplementary Fig 2.** Comparison of the initial (A) and peak (B) urinary nephrin levels by weeks of gestational age in non-AKI neonates (n=208). Values are medians, boxes represent interquartile ranges and whiskers represent minimums and maximums. Black dots represent outliers. Probability values: Kruskal-Wallis H test. Gestational age ≤29w (n=14), 30w (n=15), 31w (n=15), 32w (n=20), 33w (n=19), 34w (n=11), 35w (n=17), 36w (n=18), 37w (n=13), 38w (n=23), 39w (n=17), ≥40w (n=26).

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**Supplementary Fig 3.** Comparison of the initial (A) peak (B) level of urinary nephrin between non-AKI neonates with (n=32) and without (n=176) antenatal steroids. Values are medians, boxes represent interquartile ranges and whiskers represent minimums and maximums. Black dots represent outliers. Probability values: Mann-Whitney U test.