

Supplemental Material

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Supplemental Table 1a. Population characteristics by center

Population characteristic by center	All (n = 532)	HUG (n = 217)	RDB (n = 315)
Gender (female), n (%)	260 (49)	105 (48)	155 (49)
Gestational age (weeks), mean (SD)	27.5 (1.6)	27.5 (1.6)	27.5 (1.6)
Birth weight (grams) , mean (SD)	1009 (273)	1007 (300)	1011 (253)
Preterm birth cause, n (%)			
Preterm labor	226 (42)	70 (32)	156 (50)
Prolonged premature rupture of membranes	92 (17)	22 (10)	70 (22)
Hypertensive disorder of pregnancy	78 (15)	33 (15)	45 (14)
Chorioamnionitis	67 (13)	43 (20)	24 (8)
Other	30 (6)	20 (9)	12 (4)
Antenatal corticosteroid therapy			
No or incomplete course	127 (24)	66(30)	61(19)
Full course	405 (76)	151 (70)	254 (81)
Intra-uterine growth restriction, n (%)	51 (10)	19 (9)	32 (10)
Apgar score at 5 minutes*, mean (SD)	7.6 (2.3)	7.1 (2.0)	7.9 (2.4)
Cardiac resuscitation at birth, n (%)	35 (7)	2 (1)	33 (10)
Volume infusion, n (%)	52 (10)	33 (15)	19 (6)
Vasoactive drugs exposure, n (%)	147 (28)	24 (11)	123 (39)
Intubation, n (%)	355 (67)	119 (55)	236 (75)
Surfactant administration**, n (%)	320 (60)	78(36)	242(76)
Weight loss (%) ***, mean (SD)	8.7 (5.0)	7.8 (4.8)	9.3 (5.0)
Sepsis, n (%)	301 (57)	95 (44)	206 (65)
early onset	133 (25)	61 (28)	72 (23)
late onset	226 (42)	44 (20)	182 (58)
Vancomycin exposure, n (%)	261 (49)	61 (28)	200 (63)
Gentamicin exposure, n (%)	390 (73)	168 (77)	222 (70)
Hemodynamically significant PDA**, n (%)	234 (44)	80 (37)	154 (49)
Indomethacin exposure, n (%)	57 (11)	57 (26)	-
Ibuprofen exposure, n (%)	155 (29)	11 (5)	144 (46)
PDA ligation, n (%)	45 (8)	34 (16)	11 (3)

No patients in Paris received indomethacin for the treatment of PDA. Intubation, surfactant administration, vasoactive drug exposure, cardiac resuscitation at birth and late onset sepsis were more frequent in Paris-

n: number, SD: standard deviation, PDA: patent ductus arteriosus, RDB: Robert Debré-Paris Children's Hospital, France, HUG: University Children Hospital-Geneva, Switzerland

*: 4 missing data, **: 1 missing data, ***: 38 missing data

Supplemental Table 1b. Population characteristics when comparing included and excluded patients for missing data

Population characteristics	Study population (n=473)	Excluded patient for missing data N=68	
		No urine output data (n=9)	No creatinine data (n=59)
Gender (female), n (%)	226 (48)	6 (67)	34 (58)
Gestational age (weeks), mean (SD)	27.4 (1.6)	27.8 (1)	28.2 (1.4)
Birth weight (grams) , mean (SD)	993 (256)	944 (265)	1144 (356)
Main cause of preterm delivery, n (%)			
Preterm Labor	207 (44)	3 (33)	19 (32)
Premature rupture of membranes	81 (17)	2 (22)	11 (19)
Hypertensive disorders of pregnancy	71 (15)	1 (11)	7 (12)
Chorioamnionitis	59 (12)	1 (11)	8 (14)
Antepartum hemorrhage	30 (6)	-	9 (15)
Other	25 (53)	3(33)	5 (8)
Antenatal corticosteroid therapy, n (%)			
No or incomplete course	112 (24)	2 (22)	15 (25)
Full course	361 (76)	7 (78)	44 (75)
Intra-uterine growth restriction, n (%)	48 (10)	2 (22)	3 (5)
Apgar score at 5 minutes *, mean (SD)	7.5 (2.3)	7.4 (1.6)	7.8 (1.7)
Cardiac resuscitation at birth, n (%)	35 (7)	2 (22)	-
Fluid expansion, n (%)	44 (9)	-	8 (14)
Vasoactive drugs exposure, n (%)	140 (30)	5 (56)	7 (12)
Intubation	313 (66)	8 (89)	42 (71)
Surfactant administration**, n (%)	307 (65)	8 (89)	14 (24)
Weight loss*** (%), mean (SD)	8.6 (5.1)	17 (-)	9.0 (4.4)
Sepsis, n (%)	283 (60)	8 (89)	18 (31)
early onset	118 (25)	5 (56)	15 (25)
late onset	222 (47)	7 (78)	4 (7)
Vancomycin exposure, n (%)	257 (54)	7 (78)	4 (7)
Gentamicin exposure, n (%)	349 (74)	9 (100)	41 (69)
Hemodynamically significant PDA**, n (%)	227 (48)	5 (56)	7 (12)
Indomethacin exposure, n (%)	53 (11)	-	4 (7)
Ibuprofen exposure, n (%)	153 (32)	5 (56)	2 (3)
PDA ligation, n (%)	35 (7)	1 (11)	10 (17)

The patient excluded for missing SCr creatinine were mainly female, less premature with heavier birthweight and with less complicated clinical course (less sepsis and vancomycin treatment, less hemodynamically significant PDA and indomethacin treatment).

n: numbers, SD: standard deviation, PDA: patent ductus arteriosus

*: 4 missing data, **: 1 missing data, ***: 38 missing data

Supplemental Table 2. Population characteristics comparing very preterm infants with or without a neonatal KDIGO diagnosed acute kidney injury

Population characteristics by acute kidney injury status	N = 473	no AKI (n=372)	AKI (n=101)
Gender (Female), n (%)	226 (48)	188 (51)	38 (38)
Gestational age (weeks), mean (SD)	27.4 (1.6)	27.6 (1.5)	26.5 (1.7)
Birth weight (grams), mean (SD)	993 (256)	1028 (252)	862 (228.3)
Main cause of preterm delivery, n (%)			
Preterm Labor	207 (44)	171 (46)	36 (36)
Premature rupture of membranes	81 (17)	70 (19)	11 (11)
Hypertensive disorders of pregnancy	71 (15)	52 (14)	19 (19)
Chorioamnionitis	59 (12)	40 (11)	19 (19)
Antepartum hemorrhage	30 (6)	19 (5)	11 (11)
Other	25 (6)	20 (5)	5 (5)
Antenatal corticosteroid therapy, n (%)			
No or incomplete course	112 (24)	73 (20)	39 (39)
Full course	361 (76)	299 (80)	62 (61)
Intra-uterine growth restriction, n (%)	48 (10)	36 (10)	12 (12)
Apgar score at 5 minutes*, mean (SD)	7.5 (2.3)	7.8 (2.2)	6.7 (2.5)
Cardiac resuscitation at birth, n (%)	35 (7)	24 (6)	11 (11)
Fluid expansion, n (%)	44 (9)	25 (7)	19 (19)
Vasoactive drugs exposure, n (%)	140 (30)	94 (25)	46 (46)
Intubation, n (%)	313 (66)	245 (66)	68 (67)
Surfactant administration**, n (%)	307 (65)	233 (63)	74 (73)
Weight loss** (%), mean (SD)	8.6 (5.1)	9 (5.1)	7 (4.7)
Sepsis, n (%)	283 (60)	213 (57)	70 (69)
Early onset	118 (25)	86 (23)	32 (32)
Late onset	222 (47)	167 (45)	55 (54)
Vancomycin exposure, n (%)	257 (54)	191 (51)	66 (65)
Gentamicin exposure, n (%)	349 (74)	263 (71)	86 (85)
Hemodynamically significant PDA**, n (%)	227 (48)	145 (39)	82 (81)
Indomethacin exposure, n (%)	53 (11)	20 (5)	33 (33)
Ibuprofen exposure, n (%)	153 (32)	116 (31)	37 (37)
PDA ligation, n (%)	35 (7)	17 (5)	18 (18)

Very preterm infants diagnosed with AKI are born more prematurely, with a lower birth weight and with a more complicated neonatal adaptation. They have more hemodynamically significant PDA.

n: numbers, SD: standard deviation, PDA: patent ductus arteriosus

*: 4 missing data, **: 1 missing data, ***: 38 missing data

Supplemental Table 3. Multivariable logistic model describing the effect of the different very preterm acute kidney injury definitions on mortality.

N = 473	Alive (n = 421)	Death (n = 52)	OR (95%CI)	Adjusted OR (95%CI)	P value
Very preterm AKI 1.5, n(%)	114 (27)	36 (69)	6.1 (3.3 to 12)	5.0 (2.4 to 11)	< 0.001
Male, n (%)	219 (52)	28 (54)	1.1 (0.6 to 1.9)	0.8 (0.4 to 1.5)	0.456
Gestational age (per week), mean (SD)	27.6 (1.5)	26.2 (1.6)	0.6 (0.5 to 0.7)	0.7 (0.5 to 0.8)	< 0.001
IUGR, n (%)	37 (9)	11 (21)	2.8 (1.3 to 5.7)	3.7 (1.5 to 8.7)	0.004
Corticosteroids*	94 (22)	18 (35)	1.8 (1.0 to 3.4)	1.6 (0.8 to 3.3)	0.179
Centre RDB n (%)	275 (65)	37 (71)	1.3 (0.7 to 2.5)	2.7 (1.3 to 5.9)	0.007

N=473	Alive (n = 421)	Death (n = 52)	OR (95%CI)	Adjusted OR (95%CI)	P value
Very preterm AKI 2, n (%)	174 (41)	43 (83)	6.8 (3.4 to 15)	5.0 (2.2 to 12.3)	< 0.001
Male, n (%)	219 (52)	28 (54)	1.1 (0.6 to 1.9)	0.9 (0.5 to 1.7)	0.697
Gestational age (per week), mean (SD)	27.6 (1.5)	26.2 (1.6)	0.6 (0.5 to 0.7)	0.6 (0.5 to 0.8)	< 0.001
IUGR, n (%)	37 (9)	11 (21)	2.8 (1.3 to 5.7)	3.3 (1.4 to 7.7)	0.007
Corticosteroids*, *	94 (22)	18 (35)	1.8 (1.0 to 3.4)	1.6 (0.8 to 3.2)	0.185
Centre RDB, n (%)	275 (65)	37 (71)	1.3 (0.7 to 2.5)	2.6 (1.3 to 5.4)	0.008

GA: gestational age, Very preterm AKI 1.5: Modified AKI definitions with a threshold of urine output of 1.5 ml/kg/h, Very preterm AKI 2: Modified AKI definitions with a threshold of urine output of 2 ml/kg/h, IUGR: intra-uterine growth restriction, RDB: Robert Debré-Paris, * absence of or incomplete antenatal corticosteroid course.