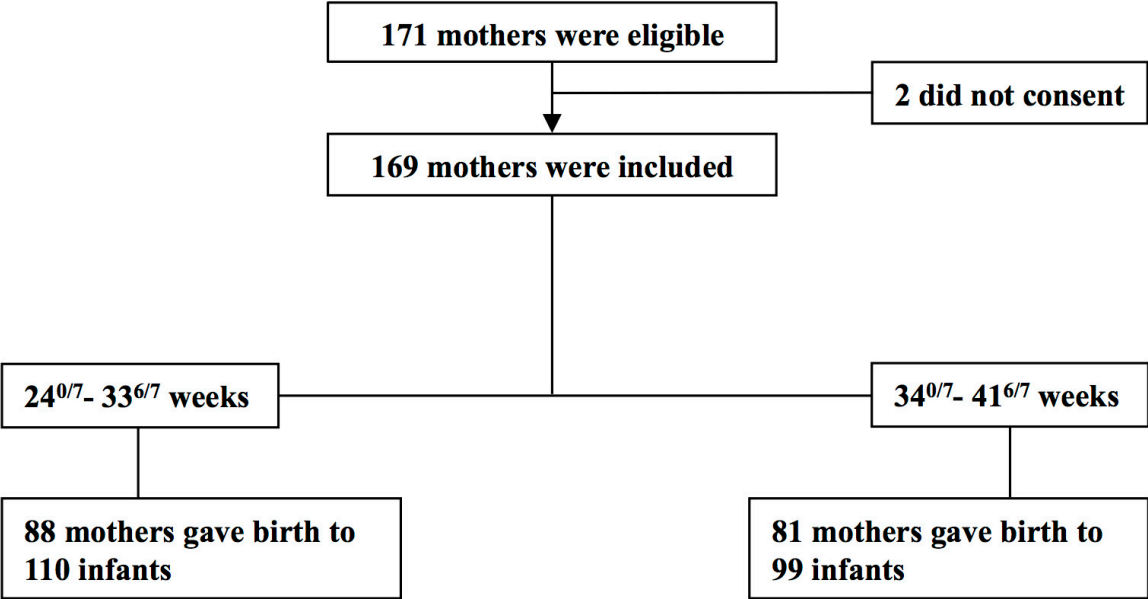


Supplemental Figures and Tables



Supplemental Figure S1: Flowchart of patient recruitment in the two gestational age groups (24<sup>0/7</sup>-33<sup>6/7</sup> weeks and 34<sup>0/7</sup>-41<sup>6/7</sup> weeks).

**Supplemental Table S1: Baseline characteristics of infants and their mothers according to gestational age groups.**

Variable	Gestational age group	
	24 <sup>0/7</sup> - 33 <sup>6/7</sup> GW	34 <sup>0/7</sup> - 41 <sup>6/7</sup> GW
<b>Mothers</b>	<b>N=88</b>	<b>N=81</b>
Race or ethnic group - N (%)		
Caucasian	47 (54%)	29 (39%)
African	36 (41%)	41 (55%)
Asian	2 (2%)	3 (4%)
Other	2 (2%)	2 (3%)
Gestation		
Median (1 <sup>st</sup> quartile – 3 <sup>rd</sup> quartile – IQR)	2 (2 – 4)	2 (2 – 4)
Min ; Max	1 ; 9	1 ; 7
Parity		
Median (IQR)	2 (1 – 3)	2 (1 – 3)
Min ; Max	1 ; 7	1 ; 7
Pre-eclampsia - N (%)	9 (10%)	1 (1%)
Antenatal glucocorticoid treatment - N (%)	73 (89%)	12 (22%)
Vaginal delivery - N (%)	48 (55%)	65 (81%)
Epidural analgesia - N (%)	31 (65%)	58 (89%)
<b>Infants</b>	<b>N=110</b>	<b>N=99</b>
Gestational age - weeks		
Median (IQR)	28.1 (26.6 – 31.3)	37.9 (35.6 – 39.9)
Min ; Max	24.0 ; 33.4	34.0 ; 41.9
Male sex - N (%)	61 (55%)	42 (42%)
Birth weight - g		
Median (IQR)	1128 (820 – 1500)	2615 (2285 – 3340)
Min ; Max	443 ; 2420	1300 ; 4370
Birth head circumference - cm		
Median (IQR)	26.5 (23.5 – 28.5)	33.0 (32.0 – 35.0)
Min ; Max	2.0 ; 34.5	27.5 ; 37.0
Birth length - cm		
Median (IQR)	37.0 (34.0 – 4.0)	47.0 (45.0 – 5.0)
Min ; Max	24.5 ; 46.0	38.0 ; 54.0
Intrauterine growth restriction below 3 <sup>rd</sup> perc.. - N (%)	8 (7%)	7 (7%)
Apgar score at 5 min		
Median (IQR)	9 (8 – 10)	10 (10 – 10)
Min ; Max	0 ; 10	7 ; 10
Multiple birth - N (%)	42 (38%)	36 (36%)
Phototherapy - N (%)	79 (76%)	30 (31%)
Continuous	27 (34%)	13 (43%)
Discontinuous	52 (66%)	17 (57%)

GW denotes gestational weeks; IQR denotes interquartile range (Q1-Q3).

**Supplemental Table S2: Number of samples (plasma, urine, milk) in mothers and infants according to gestational age group.**

	24 <sup>0/7</sup> – 33 <sup>6/7</sup> GW		34 <sup>0/7</sup> – 41 <sup>6/7</sup> GW	
<b>Mothers</b>	<b>N=88</b>		<b>N=81</b>	
	Plasma	Milk	Plasma	Milk
Delivery	N=77		N=75	
Day 3		N=37		N=61
Day 10		N=32		
Day 25		N=20		
Day 55		N=10		
<b>Newborn</b>	<b>N=110</b>		<b>N=99</b>	
	Plasma	Urine	Plasma	Urine
Birth	N=81		N=86	
Day 1		N=97		N=62
Day 3	N=90	N=104	N=83	N=63
Day 10	N=85	N=92		
Day 25	N=73	N=82		
Day 55	N=47	N=49		

GW denotes gestational weeks .

**Supplemental Table S3: Comparison of plasma melatonin concentrations (in pg/mL) in mother, and newborn at birth (Day 0) between the 2 gestational age groups and according to delivery time.**

Sample	24 <sup>0/7</sup> - 33 <sup>6/7</sup> GW	34 <sup>0/7</sup> - 41 <sup>6/7</sup> GW	P-value*
<b>Mother at delivery</b>			
Total	N=77	N=75	
Median (IQR)	7 (7 – 20)	11 (7 – 50)	.02
Min ; Max	7 ; 213	7 ; 158	
Nighttime (00:00 – 07:59)	N=14	N=17	
Median (IQR)	7 (7 – 42)	11 (7 – 72)	.32
Min ; Max	7 ; 190	7 ; 158	
Daytime (08:00 – 23:59)	N=60	N=58	
Median (IQR)	7 (7 – 19)	11 (7 – 36)	.07
Min ; Max	7 ; 213	7 ; 154	
<b>Newborn at birth (day 0)</b>			
Total	N=81	N=86	
Median (IQR)	7 (7 – 7)	7 (7 – 24)	.02
Min ; Max	7 ; 83	7 ; 184	
Nighttime (00:00 – 07:59)	N=15	N=22	
Median (IQR)	7 (7 – 15)	27 (7 – 73)	.07
Min ; Max	7 ; 58	7 ; 184	
Daytime (08:00 – 23:59)	N=66	N=64	
Median (IQR)	7 (7 – 7)	7 (7 – 11)	.11
Min ; Max	7 ; 83	7 ; 83	

\* Wilcoxon-Mann-Whitney test. GW denotes gestational weeks; IQR denotes interquartile range.

**Supplemental Table S4: Milk melatonin concentrations (in pg/mL) on Day 3 in the mothers of both gestational age groups and on Days 10, 25 and 55 in mothers who delivered at 24<sup>0/7</sup>- 33<sup>6/7</sup> weeks.**

Time of sampling	24 <sup>0/7</sup> - 33 <sup>6/7</sup> GW	34 <sup>0/7</sup> - 41 <sup>6/7</sup> GW	P-value*
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<b>Day 3</b>	N=22	N=53	
Median (IQR)	20 (7 – 33)	8 (7 – 16)	.01
Min ; Max	7 ; 137	7 ; 98	
<b>Day 10</b>	N=21		
Median (IQR)	16 (7 – 25)	-	-
Min ; Max	7 ; 93		
<b>Day 25</b>	N=9		
Median (IQR)	19 (7 – 22)	-	-
Min ; Max	7 ; 48		
<b>Day 55</b>	N=4		
Median (IQR)	20 (15 – 28)	-	-
Min ; Max	15 ; 31		

\* Wilcoxon-Mann-Whitney test. GW denotes gestational weeks; IQR denotes interquartile range (Q1-Q3).

**Supplemental Table S5: Univariate analysis of plasma melatonin and urine 6-sulfatoxy-melatonin concentrations in neonates according to perinatal variable.**

Sample Variable	Serum Melatonin		Urine 6-sulfatoxy- melatonin
	Birth	Day 3	Day 1
Lower gestational age group (24 <sup>0/7</sup> – 33 <sup>6/7</sup> weeks) – P value	.14	<.001	<.001
Male sex – P-value	NS	NS	NS
Multiple gestation – P-value	NS	.003	NS
Plasma Melatonin concentration ≤7 pg/mL in mother at delivery – P-value	.03	.17	.10
Plasma Melatonin concentration ≤7 pg/mL in newborn at birth – P-value	-	NS	NS
Pre-eclampsia – P-value	NS	.04	NS
Intrauterine growth restriction <3 perc. – P-value	NS	NS	NS
Phototherapy – P-value	NS	<.001	.08
Vaginal delivery – P-value	NS	.09	.19
Epidural analgesia – P-value	.09	NS	NS
Serum sampling timing (00:00-05:59) – P-value	.04	NS	-
Urinary sampling timing (20:00-07:59) – P-value	-	<.001	NS

NS denotes not statistically significant.