

Maternal Epworth sleepiness score associated with operative birth and adverse neonatal outcome

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Introduction

Aberrant maternal sleep in pregnancy is associated with a multitude of adverse obstetric and perinatal outcomes. The Epworth Sleepiness Scale is a self-reported, standardized measure of a woman's propensity to fall asleep in various situations and is used as a surrogate marker for maternal sleep disordered breathing.

Methods

At Mater Mothers' Hospital 178 women were prospectively recruited to complete the Epworth Sleepiness scale in the immediate postpartum period while still an inpatient following delivery. Inclusion criteria were women with a singleton pregnancy who attempted a vaginal delivery, at term, with a baby >2500 grams at birth.

Results

Women with a score ≥ 11 had lower odds of achieving a spontaneous vaginal delivery (aOR 0.43; 95% CI 0.21 – 0.88; $p = 0.02$) and higher odds of instrumental (aOR 2.81; 95% CI 1.30 – 6.08; $p=0.01$) or any operative birth (instrumental and caesarean section aOR 2.32; 95% CI 1.14 – 4.71; $p = 0.02$). These women also have higher odds of an operative birth for intrapartum fetal compromise (aOR 2.62; 95% CI 1.21 – 5.69; $p = 0.015$) as well as an infant with poor neonatal outcomes (aOR 2.77; 95% CI 1.09 – 7.03; $p=0.03$).

	ESS < 11 <i>n</i> = 133 (74.7%)	ESS \geq 11 <i>n</i> = 45 (25.3%)	Unadjusted OR (95% CI)	<i>p</i> Value	Adjusted OR (95% CI)	<i>p</i> Value
Gestation at delivery (days) (mean, SD)	276.6 (8.4)	276.9 (8.8)	1.01 (0.97 – 1.05)	0.80		
Birth weight (grams) (mean, SD)	3499.7 (426.3)	3508.9 (488.4)	1.00 (0.99 – 1.00)	0.90		
Mode of birth						
SVD	58.7% (78/133)	37.8% (17/45)	0.43 (0.21 – 0.86)	0.02*	0.43 (0.21 – 0.88)	0.02*
Operative	41.3% (55/133)	62.2% (28/45)	2.34 (1.17 – 4.68)	0.02*	2.32 (1.14 – 4.71)	0.02*
Instrumental all	17.3% (23/133)	37.8% (17/45)	2.90 (1.37 – 6.16)	0.005*	2.81 (1.30 – 6.08)	0.01*
Instrumental IFC	10.5% (14/133)	24.4% (11/45)	2.75 (1.14 – 6.61)	0.02*	2.96 (1.20 – 7.29)	0.02*
Instrumental Other	6.8% (9/133)	13.3% (6/45)	2.12 (0.71 – 6.33)	0.17	1.79 (0.58 – 5.56)	0.31
Em CS all	24.1% (32/133)	24.4% (11/45)	1.02 (0.46 – 2.24)	0.96	1.04 (0.47 – 2.33)	0.92
Em CS IFC	7.5% (10/133)	11.1% (5/45)	1.54 (0.50 – 4.76)	0.45	1.51 (0.47 – 4.83)	0.48
Em CS Other	16.5% (22/133)	13.3% (6/45)	0.78 (0.29 – 2.06)	0.61	0.81 (0.30 – 2.18)	0.67
All operative IFC	18.1% (24/133)	35.6% (16/45)	2.51 (1.18 – 5.32)	0.02*	2.62 (1.21 – 5.69)	0.015*
All operative other	23.3% (31/133)	26.7% (12/45)	1.19 (0.55 – 2.59)	0.65	1.14 (0.51 – 2.51)	0.75
ANO	9.8% (13/133)	22.2% (10/45)	2.64 (1.07 – 6.53)	0.036*	2.77 (1.09 – 7.03)	0.03*
NICU admission	7.5% (10/133)	8.9% (4/45)	1.20 (0.36 – 4.03)	0.77	1.41 (0.41 – 4.83)	0.59

ESS, Epworth Sleepiness Scale; OR, odds ratio; CI, confidence interval; SD, standard deviation; SVD, spontaneous vaginal delivery; Em CS, emergency caesarean section; IFC, intrapartum fetal compromise; ANO, adverse neonatal outcome (defined as 5-minute Apgar score <7 or Base Excess <-12mmol/L or Lactate >6mmol/L or pH <7); NICU, neonatal intensive care unit.

Discussion

Maternal sleep disordered breathing, defined as an elevated Epworth Sleepiness Scale score ≥ 11 , is associated with emergency operative delivery, especially when the indication for operative delivery is intrapartum fetal compromise, and composite adverse neonatal outcome, even in a cohort of infants that were delivered at term that were not small at birth.

Publication

N. Robertson, C. Flatley, S. Kumar, An Epworth Sleep Score ≥ 11 is associated with emergency operative birth and poor neonatal composite outcome at term, Australian and New Zealand Journal of Obstetrics and Gynaecology 0(0) (2019).