

Table 1: (mean ± SD) Normalized inflow, ejection, and isovolumic times for study and control fetuses

Doppler parameters	EFW <10 <sup>th</sup> LV	Control LV	P	EFW <10 <sup>th</sup> RV	Control RV	P
Inflow	0.44 ± 0.05	0.45 ± 0.03	0.4	0.41 ± 0.04	0.42 ± 0.04	0.29
Ejection	0.40 ± 0.02	0.41 ± 0.03	0.32	0.39 ± 0.02	0.43 ± 0.02	< 0.001
Total IVT	0.16 ± 0.05	0.14 ± 0.03	0.09	0.19 ± 0.04	0.14 ± 0.05	0.002
E:A ratio	0.78 ± 0.20	0.73 ± 0.21	0.39	0.83 ± 0.09	0.74 ± 0.10	0.006
MPI	0.40 ± 0.13	0.34 ± 0.07	0.08	0.48 ± 0.12	0.36 ± 0.16	0.005

**186 Electronic cigarette use in pregnancy is not associated with low birth weight or preterm delivery**

Brendan P. McDonnell<sup>1</sup>, Evan Bergin<sup>2</sup>, Carmen Regan<sup>1,3</sup>

<sup>1</sup>Coombe Women and Infants University Hospital, Dublin, Dublin, Ireland, <sup>2</sup>Trinity College, Dublin., Dublin, Dublin, Ireland, <sup>3</sup>Royal College of Surgeons in Ireland, Dublin, Dublin, Ireland

**OBJECTIVE:** Electronic cigarette use has increased significantly in recent years, with users perceiving it to be healthier, cleaner and more cost effective than cigarette smoking. However significant concern remains over their use in pregnancy due to a lack of data on safety and on maternal and fetal outcomes. In addition, nicotine crosses the placenta and has a direct effect on both the fetus and the placental vasculature and has been labelled a neuro-teratogen for its effects on fetal brain development.

**STUDY DESIGN:** We conducted a prospective cohort study of pregnant users of electronic cigarettes attending a large urban maternity hospital delivering over 8500 infants per year. Women were identified via the electronic booking system at first visit to the hospital. Maternal and neonatal outcomes were collected after delivery and compared to a contemporaneous group of smokers and non-smokers.

**RESULTS:** 129 women booked with a history of exclusive electronic cigarette use during the study period. Of these, 85 had a livebirth, 39 remain pregnant, and 1 patient had a second trimester miscarriage. Infants born to users of electronic cigarettes had a mean birth weight of 3482g (+/- 549g), which was similar to non-smokers (3471g +/- 504g, p=0.75) and significantly greater than that of smokers (3166g +/- 502g, p=0.001). Mean gestation at delivery was similar in electronic cigarette users, non-smokers, and smokers (39.3, 39.8, and 39.3 weeks respectively). The mean birth centile of electronic cigarette users was similar to non-smokers (51st centile vs. 47<sup>th</sup> centile, p=0.28) and significantly greater than that of smokers (27<sup>th</sup> centile, p=0.00001). There were no cases of serious maternal morbidity. Delivery outcomes including need for induction, mode of delivery, perineal trauma and post-partum hemorrhage were all similar to those of non-smokers, as were admission rates to the SCBU/NICU. There were no cases of neonatal respiratory distress syndrome.

**CONCLUSION:** The use of electronic cigarettes in pregnancy is not associated with low birth weight or preterm delivery. Both maternal and neonatal outcomes appear to be similar to non-smokers. To our knowledge, this is the first prospective study on the relationship between electronic cigarette use and maternal and fetal outcomes.

**187 Correlation between postoperative sonographic and neonatal lower extremity movement after in utero repair for meningomyelocele**

Chase Pribble<sup>1</sup>, Cara Buskmitter<sup>1</sup>, Joanna Kemp<sup>1,2</sup>, Catherine Cibulskis<sup>1,2</sup>, Allan Fisher<sup>4,3</sup>

<sup>1</sup>Saint Louis University School of Medicine, Saint Louis, MO, <sup>2</sup>SSM Cardinal Glennon Children's Hospital, Saint Louis, MO, <sup>3</sup>SSM Cardinal Glennon Children's Hospital Fetal Care Insitute, Saint Louis, MO, <sup>4</sup>Saint Louis University School of Medicine Division of Maternal Fetal Medicine, Saint Louis, MO



**OBJECTIVE:** Lower extremity movement (LEM) in fetuses undergoing prenatal myelomeningocele (MMC) repair is generally assessed at a neonatal evaluation (NE). Ultrasound (US) can assess LEM antenatally, but the correlation between US and NE is not firmly established, nor have differences in US findings on different post-operative days (POD) been correlated with NE.

**STUDY DESIGN:** This was a retrospective cohort correlation study of fetuses that underwent open repair of myelomeningocele at SSM Cardinal Glennon Fetal Care Institute, St. Louis MO between January 2011 and December 2016. Movement of the lower extremities at the toe, ankle, knee, and hip of each leg was assessed by US at the initial visit, after open repair on POD 0-5, and at 32 weeks gestation. After delivery, NE was performed by physical therapists and a neurosurgeon, with 94% occurring in the first month of life.

**RESULTS:** 41 fetuses were included. Follow-up was 100%. Movement at the ankle at the initial visit was associated with the function in the same joint on NE. US of the ankle and knee on POD 3 were strongly predictive (k=0.710, 0.420-1.000 and k= 0.577, 0.152-1.000, respectively). Ankle US on POD 4 was also strongly correlated with NE of the ankle (k=0.659, 0.308-1.000). Any LEM varied by POD: it was present on POD 1 in 45.2% of fetuses who showed neonatal movement and increased to 100% by POD 5.

**CONCLUSION:** Postoperative US assessment of movement in the knee, ankle, and toe in fetuses undergoing open fetal MMC repair correlates with NE. POD 3 assessments at the ankles and knees and strongly associated with neonatal joint function. LEM increases between POD 1 and POD 5 in fetuses that will have neonatal function.

Movement	Day	Agree, 95% CI	P Value
Right Toe	POD 3	0.323, 0.051-0.595	0.041
	POD 4	0.377, 0.043-0.710	0.007
Left Toe	POD 3	0.228, 0.052-0.403	0.044
	POD 4	0.223, 0.013-0.434	0.007
Right Ankle	Initial visit	0.293, 0.224-0.362	<0.001
	POD 3	0.322, 0.124-0.520	0.005
	POD 3	0.370, 0.125-0.600	0.001
	POD 4	0.554, 0.324-0.784	0.004
Left Ankle	Initial visit	0.417, 0.283-0.550	0.001
	POD 3	0.444, 0.124-0.764	0.005
	POD 4	0.373, 0.201-0.545	0.001
	POD 4	0.553, 0.324-0.782	0.004
Right Knee	POD 3	0.372, 0.152-0.592	0.004
	POD 3	0.377, 0.157-0.597	0.004

<sup>a</sup>Data are presented as Cohen's kappa and confidence intervals. <sup>b</sup>P values < 0.05 were considered significant.

**188 The natural history of Trisomy 21 – outcome data from a large tertiary referral centre**

Clare I. O'Connor, Jennifer Walsh, Rebecca Moore, Barbara Cathcart, Heather Hughes, Stephen Carroll, Peter Mc Parland, Rhona Mahony, Fionnuala Mc Auliffe  
The National Maternity Hospital, Dublin, Dublin, Ireland

