

Pregnancy and infant outcomes following prenatal exposure to brivaracetam: a multinational case series from Belgium, the Netherlands and UK

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Background and Objectives



Brivaracetam (BRV) is an antiseizure medication (ASM) indicated for the treatment of focal epilepsy. Safety data during pregnancy are limited to few case reports.



This study aimed to describe the pregnancy and infant outcomes following prenatal use of brivaracetam.

Methods



A case series was performed using cases from Belgium, the Netherlands and UK.

Data were extracted in March 2025 and descriptively reported. Ethical approval was received (SS6464).

Results

Maternal BRV-exposure (n=20)

Median maternal age (IQR): 30 years (26.9-33.3)
Median daily dose BRV (IQR): 175mg (100-200)

Exposure periods

Preconception: 15/18
First trimester: 19/19
BRV use until delivery: 14/15
Dose ↑ during pregnancy: 4/16
Additional ASMs during pregnancy: 14/20
Exposure to potential teratogenic ASMs: 5/20 (valproate, topiramate or carbamazepine)

Seizures in pregnancy

Registered for at least 7 of the 20 individuals

Maternal outcomes	
Pregnancy outcomes, (n=20) n (%)	
Live birth	18 (90.0)
Miscarriage	0 (0.0)
Pregnancy termination	2 (10.0)
Type of delivery, (n=17) n (%)	
Vaginal	11 (64.7)
Cesarean section	6 (35.3)
Gestational age at delivery, (n=20) median (IQR)	38 weeks (37.4-39)
Preterm delivery (<37 weeks), (n=18) n (%)	2 (11.1)

Child development assessed using Ages & Stages Questionnaire (N=3)	
1 infant at 6m: typical across all domains, except fine motor skills at cut-off level	
1 infant at 12m: typical across all domains, except fine motor skills at cut-off level	
1 infant at 24m: scored below the cut-off in all five subdomains (the mother used 800mg carbamazepine per dag in pregnancy)	

Neonatal outcomes	
Birth weight, (n=15) average (± SD)	3201.2 g (± 535.3)
Infant length, (n=10) average (± SD)	49.5 cm (± 2.5)
Low birth weight (<2,500g), (n=15) n (%)	3 (20.0)
Small-for-gestational age, (n=15) n (%)	3 (20.0)
Large-for-gestational age, (n=15) n (%)	2 (13.3)
Congenital malformation, (n=17) n (%)	2 (11.8)
Tetralogy of Fallot*	1 (5.9)
Diaphragmatic hernia**	1 (5.9)
Apgar-score 5 min <7, (n=12) n (%)	0 (0.0)
Admission to neonatal unit, (n=17) n (%)	3 (17.6)
Breastfeeding, (n=17) n (%)	6 (35.3)

*with maternal valproate until 6 weeks; **with lamotrigine during entire pregnancy

Conclusion

This study provided the largest case series on brivaracetam use during pregnancy to date. More data are, however, still needed, including on infant development following in utero exposure to brivaracetam.

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