■ Clinical commentary

Epileptic Disord 2021; 23 (2): 426-431

Epileptic Disorders

Pharmacokinetic data on brivaracetam, lacosamide and perampanel during pregnancy and lactation

Cecilie Johannessen Landmark[1,2,3], Lene Rektorli[4], Margrete Larsen Burns[3], Eline Revdal[4,5], Svein I. Johannessen[2,3], Eylert Brodtkorb[4,5]

[1] Program for Pharmacy, Dept. of Life Sciences and Health, Faculty of Health Sciences, Oslo, Metropolitan University, Oslo, Norway

[2] The National Center for Epilepsy, Sandvika, Oslo University Hospital, Oslo, Norway

[3] Section for Clinical Pharmacology, The National Center for Epilepsy, Dept. of Pharmacology, Oslo University Hospital, Oslo, Norway

[4] Dept. of Neurology and Clinical Neurophysiology, St. Olav University Hospital, Trondheim, Norway

[5] Dept. of Neuromedicine and Movement Science, The Norwegian University of Science and Technology, Trondheim, Norway

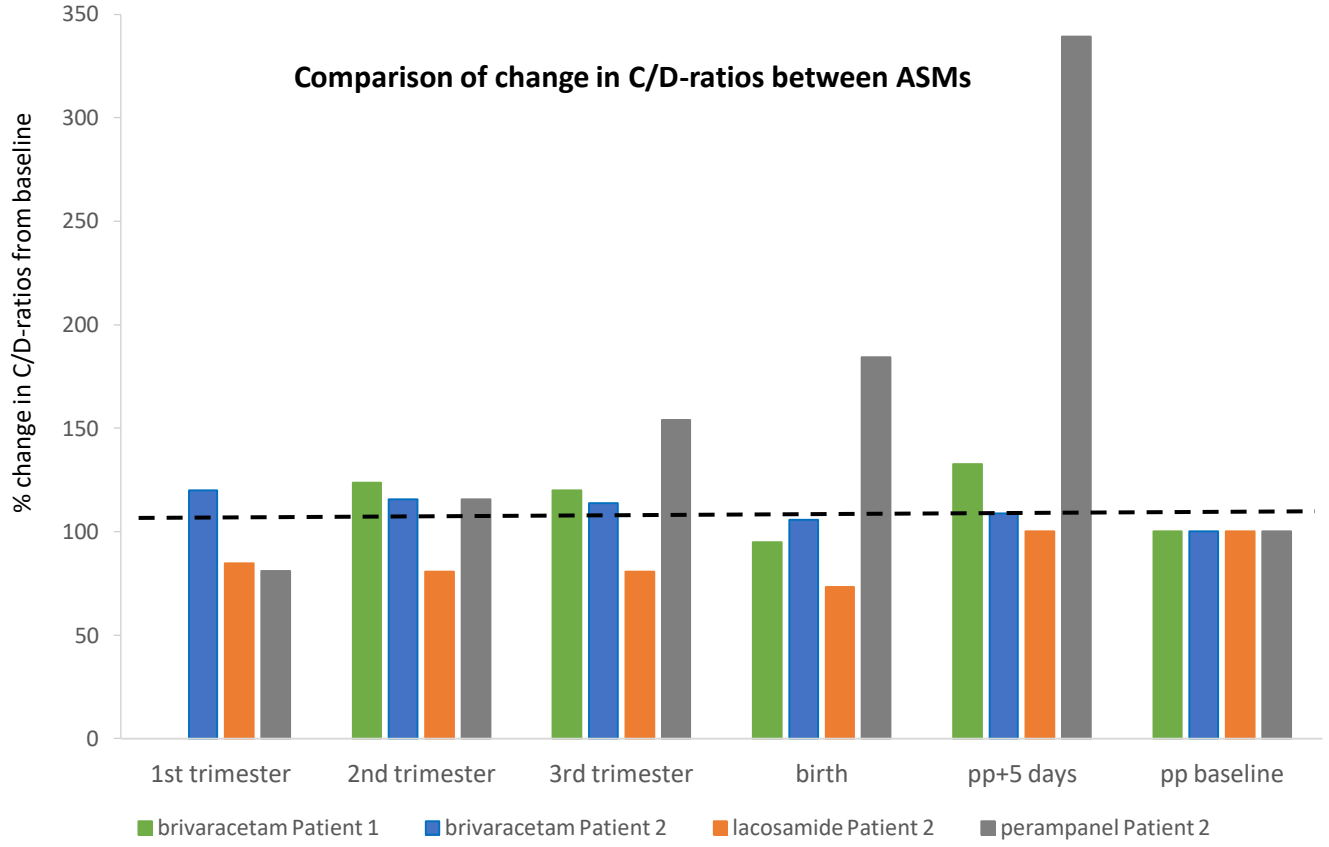
Epileptic Disorders

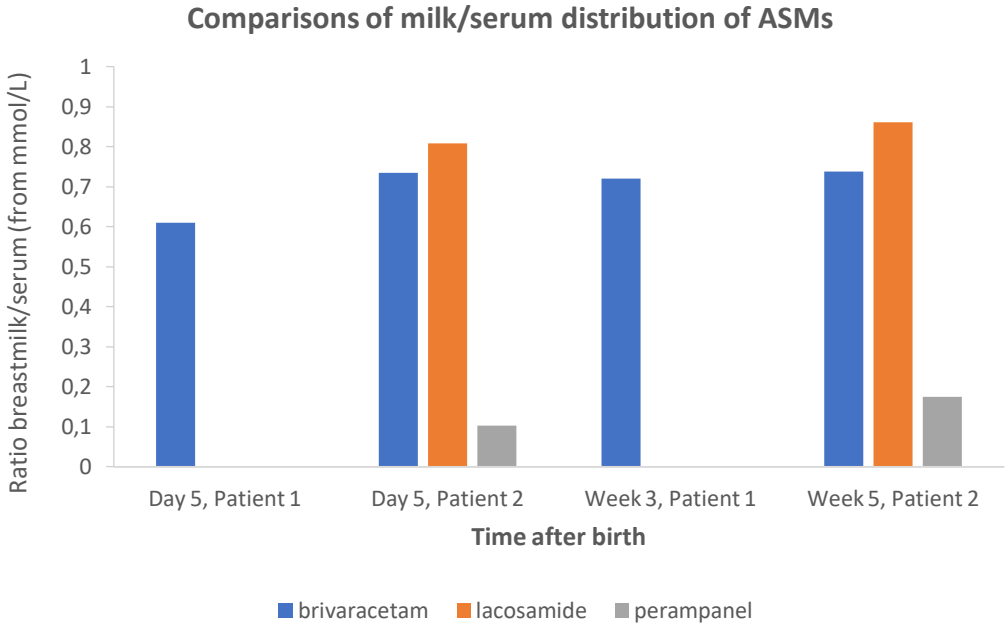
Pharmacokinetic data on brivaracetam, lacosamide and perampanel during pregnancy and lactation

- We present pharmacokinetic data during pregnancy and lactation for brivaracetam, lacosamide and perampanel: Patient 1 used brivaracetam as monotherapy and gave birth to twins. Patient 2 used a combination of brivaracetam, lacosamide and perampanel.
- In both patients, serum drug concentrations were monitored throughout the pregnancies. Drug concentrations were also analyzed in umbilical cord blood at birth, in serum from the offspring and in breastmilk after 5 days and 3-11 weeks.
- There were minor changes in concentration/dose-ratios for brivaracetam and lacosamide. The mean milk/serum-ratios for brivaracetam and lacosamide were 0.71 and 0.83, respectively, 5 days and 3-5 weeks after delivery. The perampanel serum concentration increased by up to 80% in Patient 2 during the last part of gestation. The mean milk/serum-ratio of perampanel was 0.13, unchanged from 5 days to 5 weeks after delivery.
- Serum concentrations of brivaracetam and lacosamide remained fairly stable throughout pregnancy, and perampanel concentrations seemed to steadily increase towards the end.
- The distribution to milk was considerable for brivaracetam and lacosamide and low for perampanel.
- More studies on mother-infant pairs are warranted to confirm these results in larger groups.

Epileptic Disorders

PK changes during pregnancy, and distribution to breastmilk for brivaracetam, lacosamide and perampanel





Pharmacokinetics throughout pregnancy for each antiseizure medication.
Percentage change in serum concentration/dose ratios (C/D-ratios) of the three drugs used in Patients 1 and 2 as compared to baseline values (mean values from measurements at 2-5 weeks + 4 months postpartum). *perampanel at five days postpartum due to probable double dose intake (left), and the distribution of breastmilk/serum (right).

Epileptic Disorders