

PHARMACOKINETICS OF LITHIUM DURING DELIVERY AND IN THE NEONATAL PERIOD. A PRELIMINARY DATA

M. Guitart^{1,2}, **M.L. Imaz**^{1,3}, **D. Soy**^{3,4}, **M. Torra**^{3,5}, **A. González-Rodríguez**¹, **S. Hernández**⁶, **C. Hernández Rambla**⁷, **C. Soler**⁸, **A. Torres**^{1,3}, **L. Garcia-Esteve**^{1,3}

¹Perinatal Psychiatry and Gender Research Program, Department of Psychiatry and Psychology, Institut Clínic of Neuroscience, Hospital Clínic, ²Psychiatry, Xarxa Assistencial Althaia, Hospital Sant Joan de Déu, Manresa, ³Institut d'Investigacions Biomèdiques August Pi i Sunyer, University of Barcelona, ⁴Department of Pharmacy, Hospital Clínic, ⁵Department of Biochemistry and Molecular Genetics, Biomedical Diagnostic Centre, Hospital Clínic, ⁶Department of Maternal-Fetal Medicine, Institut Clínic of Gynaecology, Obstetrics and Neonatology, Hospital Clínic, ⁷Psychiatry, University Hospital Parc Taulí, ⁸Neonatology, Institut Clínic of Gynaecology, Obstetrics and Neonatology, Hospital Clínic, Barcelona, Spain

Introduction: Lithium has been used in the treatment of bipolar disorder in pregnant women. However, information on the pharmacokinetics of lithium during perinatal period is scarce.

Objectives: To study pharmacokinetics of lithium during delivery and in the neonatal period.

Methods: A prospective, observational and naturalistic study was conducted at the PERINATAL PSYCHIATRY PROGRAM CLÍNIC-BARCELONA, from 2005 to 2012. We included all consecutive cases of pregnant women with bipolar disorder I or II (n=22), and on maintenance treatment with lithium monotherapy (n=13) or polytherapy (n=9) during pregnancy who elected artificial feeding. Lithium plasma concentrations in maternal blood and umbilical cord were detected. Lithium plasma concentrations in infants (n=16) at delivery and in the neonatal period were obtained to calculate elimination half-life, which was estimated by lineal regression. Technique: AVL 9180 electrolyte analyser using a lithium-selective electrode (detection limit =0.10 mEq/L).

Results: Women did not fulfil diabetes criteria pre-pregnancy and during pregnancy. Attending to neonatal outcomes, infants exposed to polytherapy had a higher weight at birth (percentils) than those exposed to lithium alone [53.38 (33.40) vs. 70.22 (26.25)]. No statistically significant differences were found in umbilical cord:maternal plasma concentration ratio between those treated with lithium monotherapy and women treated with polytherapy (1.05 vs. 1.08). The lithium mean elimination half-life (SD) in infants was 6.73 (9.12) days.

Conclusions: Lithium crosses placental barrier almost completely. Elimination half-life in neonates exposed to lithium in utero was 6.73 days. Moreover, lithium treatment during pregnancy requires therapeutics monitoring in exposed dyads.