

Lithium parameters in patients with bipolar disorder treated with lithium carbonate; age and dose dependent

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Abstract

Background: Lithium in the form of lithium carbonate (Li_2CO_3) has become one of the most effective and widely prescribed drugs for mood stabilization. Its optimal and safe therapeutic blood levels and age dependence in patients with bipolar disorder are perpetually discussed.

Methods: The mean Li_2CO_3 and lithium ions daily dosage, serum and urinary lithium concentration and urine lithium to creatinine ratio were quantified and calculated in groups of patients aged ≤ 50 years (mean 34 years; $n=22$) and >50 years (mean 62 years; $n=58$) who were under lithium treatment.

Results: The mean Li_2CO_3 and lithium ions daily dosage, serum and urinary lithium concentration, and urine lithium to creatinine ratio were in the groups of patients aged ≤ 50 and >50 years 894 and 611 mg/day ($p<0.0001$), 24.2 and 16.6 mmol/day ($p<0.0001$), 0.53 and 0.55 mmol/L ($p=0.786$), 8.96 and 8.12 mmol/L ($p=0.496$), 1.16 and 0.96 ($p=0.098$), respectively.

Conclusion: The average daily dose of Li_2CO_3 in the group of patients > 50 years old was lower by 32% than that of the second patients group aged ≤ 50 years. However, the serum lithium concentration was practically identical in both age groups. Lithium excretion presented as urinary lithium to creatinine ratio was also quite similar. These findings cannot be explained by decreased lithium clearance, since its excretion was not significantly different in both age categories. Other factors such as intestinal absorption and age dependent pharmacological characteristics should be taken into account.

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Biography:

M.Dastyk has completed Qualifications in Internal Medicine (Stage 1) and Clinical Biochemistry (Stage 1 and 2). He has worked on his PhD and habilitation as associate professor in

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Speaker Publications:

1. "Skin wipe test: A simple, inexpensive, and fast approach in the diagnosis of cystic fibrosis"; Pediatric Pulmonology, Volume55, Issue7
2. "Activation of the Nitric Oxide Pathway and Acute Myocardial Infarction Complicated by Acute Kidney Injury"; Cardiorenal Medicine, 2020, Vol.10, No. 2
3. "WS04-1 Skin Wipe Test (SWT) as a non-invasive, fast, cheap and simple surrogate to conventional Macroduct sweat test: statistical data"; Journal of Cystic Fibrosis VOLUME 18, SUPPLEMENT 1, S6-S7.
4. "Microbiome and Metabolome Profiles Associated With Different Types of Short Bowel Syndrome: Implications for Treatment"; Journal of Parenteral and Enteral Nutrition Volume44, Issue1
5. "MULTIPLE NEUROENDOCRINE TUMOR OF THE SMALL BOWEL DIAGNOSED BY CAPSULE ENDOSCOPY"; Endoscopy 51(4).

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