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## Antidepressant drugs reverse the hypomagnesaemia-induced immobility in the tail suspension test in albino mice

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**Statement of the Problem:** Major depression is currently accepted as one of the most frequent, chronic, recurrent and lifedebilitating health problems in the developed countries. It seems that nutritional status plays an important role in mental health, and poor nutrition may contribute to the development of the affective disorders. There is strong evidence that magnesium deficiency is associated with personality changes, including depression, and the experimental magnesium deficiency has been proposed as an anxiety/depression model, though it has not been fully characterized in albino mice. The main goal of our experiments was to investigate whether it is possible to attenuate the increased depression-related behaviour of magnesiumdeficient albino mice by application of the clinically used antidepressant drugs and if this hypomagnesaemia model is suitable for testing a wide range of compounds with antidepressant potential.

**Methodology & Theoretical Orientation:** The tail suspension test (TST) was used to evaluate the depressive-like behaviors in male albino Swiss mice. Spontaneous locomotor activity and body mass of animals were measured in order to filter out false positive/negative results.

**Findings:** After consumption of a low magnesium-containing diet for six weeks, the albino mice presented prolonged immobility in the TST. Depression-like behaviour of albino mice was significantly reversed by an acute intraperitoneal administration of antidepressant drugs from different pharmacological groups: imipramine (30 mg/kg), reboxetine (10 mg/kg), agomelatine (40 mg/kg), and venlafaxine (2 mg/kg). Escitalopram at a dose of 4 mg/kg did not produce similar effect. The results were not affected by changes in animals' locomotion or their body mass.

**Conclusion & Significance:** The obtained data confirmed that magnesium-deficiency model for depression seems to be valid in the case of albino mice and generally could be used to assess the antidepressant potential of agents that differ in respect of the chemical structure and mechanism of action.



## Biography

Anna Serefko is an adjunct at Chair and Department of Applied Pharmacy, Medical University of Lublin. Apart from drug technology, her research interests focus on the behavioural pharmacology, with particular attention towards depression, anxiety, and epilepsy. She searches for new treatment strategies for affective disorders investigating both novel chemical compounds with an antidepressant/anxiolytic potential and the unique combinations of well-known drugs. Her latest studies involve improvement of the hypomagnesaemia-induced depression and anxiety model.

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