Cholinergic counterpart in systemic Lithium action

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Granulocytopoietic response to lithium carbonate (Li^+) in rat was eliminated completely by N-cholinergic blocking agent, and independently by alpha-$_1$-adrenergic antagonist. A link between these two contradictory events is explained by release of acetylcholine from the cholinergic preganglionic nerve endings in adrenal medulla triggered by Li^+ ,and subsequent discharge of catecholamines (CA) from medullar chromaffin cells, which on their part activate adrenergic receptors of alpha-1 class on hematopoietic progenitor cells. Respectively, granulocytopoietic response to Li^+ is blocked by cholinergic N-blocking agent at the level of adrenal medulla, and by the alpha-adrenergic blocking agent at the level of the hematopoietic cells proper. The stimulatory action of Li^+ on granulocytopoietic cells is indirect, while is mediated by CA release from adrenal chromaffine cells. Experimental findings suggesting *cholinergic* nature of neuronal activity in CNS evoked by *lithium* are increasingly accumulating.