Effects of aluminum chloride on proliferation and neurogliogenesis of neural progenitor cells

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Al is considered a neurotoxin and spreads on the most different types of nerve cells, as in neural progenitor cells (NPCs)¹,². Once NPCs play a key role on development and regeneration of brain throughout life, this metal may contribute to neuropathological conditions³,⁴. Here, we evaluated the effects of Al at different concentrations (0.1–100 µM) on proliferation and differentiation of NPCs isolated from embryonic telencephalons, cultured as neurospheres. Our results revealed that Al reduced the proliferation and expansion of neurospheres, inducing apoptosis in these cells. In addition, Al promoted a decrease in the immature neural marker β3-tubulin expression and an increase in glial fibrillary acidic protein expression, impairing the neural fate by blocking neurogenesis and stimulated gliogenesis. Thus, we conclude that Al may have a decisive function in the proliferation of NPCs that directly affects the choice of cells to differentiate into neurons or glial cells.


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