

Dexamethasone induced behavioral changes in children treated for acute lymphoblastic leukemia

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Studies in children treated with glucocorticoids (GC) have shown various behavioral disturbances but to date, such studies in children with acute lymphoblastic leukemia (ALL) have been sparse. Together with Prednisone, Dexamethasone (DEX) is the primary GC drug used in ALL protocols, significantly contributing to successful treatment. However, parents and children frequently complain about serious behavioral, mainly externalizing problems in their children during repeated DEX periods.

We performed a prospective, longitudinal and nationwide study in 42 ALL patients (57% males) and 19 healthy sibling controls to examine the adverse effects of repeated oral dexamethasone (daily gifts of 6 mg/m² during 2 weeks, repeated every 7 weeks during 24 months). Children were aged 3 to 9 years at diagnosis (Md = 5.5 yrs) and were followed longitudinally for 3 years in a repeated measurements design by using parents-completed questionnaires. Results were compared for patients on and off DEX treatment and for patients and controls.

Results indicate that children during DEX periods show significantly elevated levels of behavioral problems, mainly hyperactivity, as measured by the Connors parents rating scale. After cessation of DEX treatment, these behavioral changes normalize. Anxiety and (psycho)somatic complaints are elevated in children treated for ALL as well, but unrelated to DEX treatment.

We conclude that oral DEX treatment is associated with acute, but transient behavioral changes. Further research is needed to study the complex relationship between behavioral changes and altered brain metabolism or structure, and to develop interventional strategies to prevent or reduce the serious DEX related behavioral changes.

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