CONCLUSIONS: MVAD in pregnancy causes learning and memory impairment of adult offspring.

EFFECTS OF MARGINAL VITAMIN A DEFICIENCY ON LONG-TERM POTENTIATION IN YOUNG RATS

Submitted by Ting-Yu Li
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INTRODUCTION: Vitamin A is an essential micronutrient for brain development. Marginal vitamin A deficiency (MVAD) remains a subclinical public health problem in children, but little is known about the mechanism by which it affects brain development beginning from embryonic period and early postnatal period.
OBJECTIVE: The objective of this study was to study the effects of MVAD on the hippocampal CA1 long-term potentiation (LTP) in young rats.
METHODS: The MVAD group was fed a vitamin A–deficient diet (400 IU/kg vitamin A), and the control group was fed a vitamin A–sufficient diet (6500 IU/kg vitamin A) at 3 weeks before coitus. Serum vitamin A was assessed by high-performance liquid chromatography. Hippocampal CA1 LTP was detected by electrophysiologic technique, and the ultrastructure of synapses was observed by electron microscope.
RESULTS: The changes of field excitatory postsynaptic potentials slope (25.4% ± 2.01%) in MVAD rats aged 7 weeks was much lower than that in the control group (57.5% ± 8.6%). The changes of slope of field excitatory postsynaptic potentials induced by MVAD in young rats could be replenished after addition of retinoic acid (RA); however, LTP impairment was observed again after addition of RA antagonist into the solution of the control group. No differences of LTP were found after addition of $FeSO_4$ or $ZnSO_4$. The curvature of the synaptic interface of the MVAD group was less than that of the MVAD group that was supplemented with RA and of the control group.
CONCLUSIONS: MVAD during the embryonic and early postnatal period can directly impair the hippocampal CA1 LTP of young rats.

EFFECT OF BCG VACCINATION ON SPLENIC DENDRITIC CELL DEVELOPMENT IN NEONATAL BALB/C MICE

Submitted by Enmei Liu
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INTRODUCTION: As an immunoregulator, Mycobacterium BCG has the potential to be applied in allergic disease such as asthma prevention in clinic. Previous studies showed that neonatal BCG vaccination promoted mouse splenic T helper 1 development.
OBJECTIVE: The objective of this study was to investigate further the impact of BCG vaccination on dendritic cell (DC) development in neonatal mice.
METHODS: Neonatal and adult BALB/C mice were divided into 2 groups: the control group and the BCG-treated group in which BALB/C mice were inoculated with 1×10^5 colony-forming units of BCG intraperitoneally. After 4 weeks, splenic cells were isolated and co-stimulatory molecules and major histocompatibility complex molecules were analyzed by flow cytometry on CD11c-positive cells.
RESULTS: $CD11c^+CD8\alpha^+$ and $CD11c^+CD8\alpha^-$ DCs were found in spleen cells of BALB/C mice. In comparison with the control group, the percentage of $CD8\alpha^-$ DCs was significantly decreased (45.00 ± 14.14 vs 67.00 ± 8.27) and that of $CD8\alpha^+$ DCs was strikingly increased (55.00 ± 14.14 vs 33.00 ± 8.27) in BCG-treated neonatal mice. In contrast, the percentage of $CD8\alpha^-$ DCs markedly increased from 57% to 70% and that of $CD8\alpha^+$ DCs noticeably decreased from 43% to 30% in adult mice that were vaccinated. BCG vaccination upregulated the expression of co-stimulatory molecules on DC in adult and neonatal mice.
CONCLUSIONS: Our results indicate that development of T cells was induced by BCG vaccination through an effect on DC differentiation and maturation in BALB/C mice, possibly not only by DC phenotype but also by cytokines.

IMPACT OF ZINC SUPPLEMENTATION ON RESPIRATORY AND GASTROINTESTINAL INFECTIONS: A DOUBLE-BLIND, RANDOMIZED TRIAL AMONG URBAN IRANIAN SCHOOLCHILDREN

Submitted by Nahid Masoodpoor
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INTRODUCTION: In addition to inhibiting growth, mild zinc deficiency is probably associated with reduced resistance to infection in children, but it has been difficult to establish this link; however, children with severe

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