

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

Ting-Yu Li, Chun-Ting Mao, Hong-Mei Huang, You-Xue Liu, Ping Qu, Li Yang
Children's Hospital, Chongqing Medical University, Chongqing, China

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 ($25.4\% \pm 2.01\%$) in MVAD rats aged 7 weeks was much lower than that in the control group ($57.5\% \pm 8.6\%$). 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

Liu Enmei^a, Liu Chunhua^a, He Yun^b, Liu Wei^b, Li Xin^c, Jiang Liping^b, Yang Xiqiang^b

^aDivision of Respiratory Disorders, ^bDepartment of Clinical Immunology, and ^cDepartment of Core Laboratory, Children's Hospital, Chongqing Medical University, Chongqing, China

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: $\text{CD11c}^+\text{CD8}\alpha^+$ and $\text{CD11c}^+\text{CD8}\alpha^-$ DCs were found in spleen cells of BALB/C mice. In comparison with the control group, the percentage of $\text{CD8}\alpha^-$ DCs was significantly decreased (45.00 ± 14.14 vs 67.00 ± 8.27) and that of $\text{CD8}\alpha^+$ DCs was strikingly increased (55.00 ± 14.14 vs 33.00 ± 8.27) in BCG-treated neonatal mice. In contrast, the percentage of $\text{CD8}\alpha^-$ DCs markedly increased from 57% to 70% and that of $\text{CD8}\alpha^+$ 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

Nahid Masoodpoor, Shokoofeh Darakhshan, Darakhshan Darakhshan, Seyed Taghi Tabatabaei, Seyed Abualghasem Mosavat
Ali-Ebn-Abitaleb Medical Hospital, Rafsanjan, Iran

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

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

Ting-Yu Li, Chun-Ting Mao, Hong-Mei Huang, You-Xue Liu, Ping Qu and Li Yang

Pediatrics 2008;121;S153

DOI: 10.1542/peds.2007-2022000000

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/121/Supplement_2/S153.1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Nutrition http://www.aappublications.org/cgi/collection/nutrition_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.aappublications.org/site/misc/reprints.xhtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

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

Ting-Yu Li, Chun-Ting Mao, Hong-Mei Huang, You-Xue Liu, Ping Qu and Li Yang
Pediatrics 2008;121;S153

DOI: 10.1542/peds.2007-2022000000

The online version of this article, along with updated information and services, is
located on the World Wide Web at:

http://pediatrics.aappublications.org/content/121/Supplement_2/S153.1

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2008 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

