

Submitted by Esmot Ara Begum

Esmot Ara Begum, Motoki Bonno, Noriko Ohtani, Shigeko Yamashita, Shigeki Tanaka, Hatsumi Yamamoto, Masatoshi Kawai, Yoshihiro Komada
Clinical Research Institute and Department of Pediatrics and Department of Nursing, National Hospital Organization, Miechuo Medical Center, Tsu City, Mie, Japan; Department of Developmental Clinical Psychology, Institute for Education, Mukogawa Women's University, Nishinomiya City, Hyogo, Japan; Department of Pediatrics and Developmental Science, Mie University Graduate School of Medicine, Tsu City, Mie, Japan

INTRODUCTION: Kangaroo care (KC) has been thought of as an important intervention for improving the care of low birth weight infants; however, the physiological effect of KC is still controversial.

OBJECTIVE: The aim of this study was to investigate physiological responses during KC.

METHODS: Sixteen low birth weight (<1600 g) infants with gestational ages of 24 to 32 weeks were studied. Heart rate (HR), respiration rate, pulse oxygen saturation (SpO₂), and regional cerebral oxygenation (rSO₂) were obtained in 3 periods continuously: before, during, and after KC. Spectral analysis was performed. Total amplitude, the power of low-frequency (LF; 0.06–0.10 Hz) band, high-frequency (HF, 0.15–0.40 Hz) band, and the ratio of LF/HF were calculated. Three groups were compared by analysis of variance.

RESULTS: Significant differences were not observed during KC in terms of mean HR, SpO₂, and rSO₂. By amplitude, these parameters were significantly decreased during KC ($P < .001$) and increased after KC ($P < .001$). The power of LF or HF was either significantly decreased during KC in HR, SpO₂, and rSO₂ ($P < .05$); however, the ratio of LF/HF was increased during KC in HR, whereas the ratio was decreased in rSO₂ ($P < .05$).

CONCLUSIONS: These results suggest that KC influences the stability of rSO₂ as well as HR and SpO₂. Discrete results in the LF/HF ratio of rSO₂ may indicate that KC has different effects on rSO₂ associated with cerebral function.

AMNIOTIC FLUID TRANSFORMING GROWTH FACTOR β AND THE DEVELOPMENT OF NEONATAL CHRONIC LUNG DISEASE

Submitted by Hiroyuki Ichiba

Hiroyuki Ichiba^a, Mika Saito^b, Tsunekazu Yamano^b
^a*Osaka City General Hospital, Osaka, Japan;* ^b*Graduate School of Medicine, Osaka City University, Osaka, Japan*

INTRODUCTION: Chorioamnionitis can initiate fetal lung injury and result in neonatal chronic lung disease

(CLD). Although neonates with CLD have higher amniotic fluid concentrations of proinflammatory cytokines, overexpression of transforming growth factor β (TGF- β) also seems to be important in the pathogenesis of neonatal CLD.

OBJECTIVE: Our goal was to investigate how TGF- β is related to fetal lung injury induced by chorioamnionitis.

METHODS: Forty-four amniotic fluid samples were obtained at delivery from preterm infants (median gestational age: 28 weeks; median birth weight: 908 g). TGF- β and interleukin 6 (IL-6) concentrations in amniotic fluid were measured with enzyme-linked immunosorbent assays.

RESULTS: TGF- β concentration in amniotic fluid correlated with IL-6 concentration ($P < .0001$). Both TGF- β and IL-6 concentrations in amniotic fluid increased with increasing histologic severity of chorioamnionitis (each $P < .0001$). Coexisting presence of neonatal CLD and histologic chorioamnionitis was associated with significantly higher amniotic fluid TGF- β and IL-6 concentrations than presence of neonatal CLD without histologic chorioamnionitis or absence of both (mean TGF- β level: 454.3 vs 119.2 vs 151.8 pg/mL [$P < .0001$]; mean IL-6 level: 5.14 vs 0.99 vs 1.64 ng/mL [$P = .0005$]). Both TGF- β and IL-6 concentrations in amniotic fluid correlated with duration of neonates' need for oxygen administration (each $P < .0001$).

CONCLUSIONS: Amniotic fluid TGF- β may be important in chorioamnionitis-induced fetal lung injury that results in neonatal CLD.

AGE-RELATED SERIAL PLASMA CITRULLINE LEVELS IN PRETERM NEONATES

Submitted by Hariklia Ioannou

Hariklia Ioannou^a, Persephone Avgoustides-Savvopoulou^a, Elisavet Diamanti^b, Zoi Tsampoura^b, Vasiliki Drosou-Agakidou^b

^a*First Pediatric Department and* ^b*First Neonatology Clinic, Hippocraton General Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece*

INTRODUCTION: Citrulline is a nonessential amino acid that is synthesized almost exclusively in the small intestine. In adults and children with short-bowel syndrome, citrulline has served as a reliable index of the remaining small intestine length. Citrulline is also a precursor of arginine, the role of which is crucial for neonatal metabolism and growth.

OBJECTIVE: We sought to determine serial plasma citrulline levels of preterm neonates to assess levels in accordance with age and intestinal maturation, which may serve as a baseline in the event of intestinal abnormalities such as necrotizing enterocolitis (a devastating complication in this age group).

AMNIOTIC FLUID TRANSFORMING GROWTH FACTOR β AND THE DEVELOPMENT OF NEONATAL CHRONIC LUNG DISEASE

Hiroyuki Ichiba, Mika Saito and Tsunekazu Yamano

Pediatrics 2008;121;S137

DOI: 10.1542/peds.2007-2022FFFF

Updated Information & Services

including high resolution figures, can be found at:
http://pediatrics.aappublications.org/content/121/Supplement_2/S137.1

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):
Fetus/Newborn Infant
http://www.aappublications.org/cgi/collection/fetus:newborn_infant_sub
Pulmonology
http://www.aappublications.org/cgi/collection/pulmonology_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

AMNIOTIC FLUID TRANSFORMING GROWTH FACTOR β AND THE DEVELOPMENT OF NEONATAL CHRONIC LUNG DISEASE

Hiroyuki Ichiba, Mika Saito and Tsunekazu Yamano

Pediatrics 2008;121;S137

DOI: 10.1542/peds.2007-2022FFFFF

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/S137.1

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™

