

### Submitted by Qiu Li

Qiu Li, Ping-li She, Jia Chen, Wei Zhang  
*Children's Hospital, Chongqing Medical University,  
Chongqing, China*

**INTRODUCTION:** Henoch-Schönlein Purpura (HSP) is a common vasculitis in children, and the unbalance of T-helper 1/T-helper 2 plays an important part in its pathogenesis. Mannose-binding lectin (MBL) is an important component of innate immunity and related with a lot of diseases with immunologic derangement. However, we do not know the relationship between MBL and HSP.

**OBJECTIVE:** We aimed to explore the serum level and gene polymorphisms of MBL and the levels of interleukin 10 (IL-10), IL-12, and IL-18 in supernatant of peripheral blood mononuclear cells of children with HSP and HSP nephritis (HSPN) and of healthy children.

**METHODS:** The concentrations of MBL and IL-10, IL-12, and IL-18 were measured by enzyme-linked immunosorbent assay; MBL gene polymorphisms were analyzed by polymerase chain reaction-restriction fragment length polymorphism and polymerase chain reaction with sequence-specific primers.

**RESULTS:** The serum MBL levels in the 23 children with HSP were not significantly different from 27 children with HSPN ( $P = .95$ ) or 18 normal children. The levels of IL-18 in the supernatant of peripheral blood mononuclear cells in the 3 groups were not significantly different from each other ( $P = .47, .15, \text{ and } .14$ ). The levels of IL-10 in children with HSP and HSPN were not different from each other ( $P = .70$ ), but both were significantly different from those in the normal children ( $P = .04 \text{ and } .01$ ). The levels of IL-12 in children with HSP were different from those in the children with HSPN ( $P = .04$ ). The MBL promoter genotype and the frequency of alleles were not different between the children with HSP and HSPN or between those 2 groups compared with the normal group.

**CONCLUSIONS:** IL-12 probably plays an important role in the renal involvement in HSP. The position of MBL in the pathogenesis of HSP and HSPN remains to be confirmed.

### RESPIRATORY SYNCYTIAL VIRUS INDUCED MORE SERIOUS INFECTION AND INFLAMMATION IN NUDE MICE THAN IN BALB/c MICE

#### Submitted by Juan Zhou

Juan Zhou, Xi-Qiang Yang, Zhou Fu, Xiao-Dong Zhao, Li-Ping Jiang, Li-Jia Wang, Yu-Xia Cui  
*Department of Immunology, Children's Hospital, Chongqing Medical University, Chongqing, China*

**INTRODUCTION:** Respiratory syncytial virus (RSV) infection is ubiquitous and leads to severe disease in immunocompromised individuals.

**OBJECTIVE:** Our goal was to compare RSV infection and inflammation between immunocompetent BALB/c mice and immunodeficient nude mice.

**METHODS:** Pulmonary viral titers, histology, immunohistochemistry for CD14 and CD56, leukocyte counting, and cytokines were assayed by enzyme-linked immunosorbent assay in bronchoalveolar lavage fluid.

**RESULTS:** RSV titers peaked on the third day after inoculation in both types of infected mice. Infected nude mice had higher-level and more durative viral replication, more severe pulmonary histopathology, and a larger number of leukocytes in bronchoalveolar lavage fluid than infected BALB/c mice. Infected nude mice displayed more pulmonary (CD14<sup>+</sup>) macrophages ( $114.34 \pm 20.24$  vs  $75.46 \pm 12.37$ ;  $P = .05$ ) and (CD56<sup>+</sup>) natural killer cells ( $37.87 \pm 8.07$  vs  $11.06 \pm 5.37$ ;  $P = .05$ ) than infected BALB/c mice. RSV infection enhanced production of tumor necrosis factor  $\alpha$ , interleukin 12 (IL-12), interferon  $\gamma$ , and IL-10 in both types of mice. Infected nude mice had a higher level of tumor necrosis factor  $\alpha$  ( $40.30 \pm 7.34$  vs  $24.24 \pm 9.54$ ;  $P = .05$ ), IL-12 ( $83.96 \pm 12.32$  vs  $68.21 \pm 7.42$ ;  $P = .05$ ), and IL-10 ( $125.01 \pm 18.97$  vs  $77.56 \pm 9.01$ ;  $P = .05$ ) than infected BALB/c mice.

**CONCLUSIONS:** RSV-infected nude mice are a good model for assessing severe and persistent infection in individuals at high risk. RSV-induced inflammation is not parallel to the immune response of T cells, and macrophages and natural killer cells contribute to severe infection and inflammation of RSV-infected cellular-immunodeficient individuals.

## Infectious Diseases

### DIAGNOSTIC VALUE OF IN SITU POLYMERASE CHAIN REACTION IN CHILDHOOD LEPROSY

#### Submitted by Rajeshwar Dayal

Rajeshwar Dayal<sup>a</sup>, S. P. Singh<sup>a</sup>, P. P. Mathur<sup>a</sup>, V. M. Katoch<sup>b</sup>, K. Katoch<sup>b</sup>, M. Natrajan<sup>b</sup>  
*<sup>a</sup>Department of Pediatrics, S. N. Medical College, Agra, India; <sup>b</sup>National Jalma Institute for Leprosy and other Mycobacterial Diseases, Agra, India*

**OBJECTIVE:** Our aim was to assess the diagnostic value of in situ polymerase chain reaction (PCR) in leprosy, particularly for enhancing histopathological diagnosis.

**METHODS:** We prospectively studied 20 children (aged <16 years) with leprosy. Clinical examination of each case was performed, and skin smear for acid-fast bacillus was prepared. A biopsy of the lesion site was performed

for histopathological examination and in situ PCR testing.

**RESULTS:** Histopathological examination confirmed the clinical diagnosis in only 45% of the cases; nonspecific histopathology was reported for the remaining 55% of the cases. In situ PCR showed a positivity of 57.1% in the early/localized form of leprosy (indeterminate/borderline tuberculoid) and 61.5% in the borderline borderline/lepromatous group. When compared with the histopathological examination, a significant enhancement of 15% in diagnosis was seen. With in situ PCR, the diagnosis could be confirmed in 4 (36.3%) of 11 cases with nonspecific histopathological features (which is common in early disease) in addition to confirmation of 8 (88.8%) of 9 histopathologically confirmed tissue sections. Histopathology and in situ PCR combined together confirmed the diagnosis in 13 (65%) of the 20 cases.

**CONCLUSIONS:** In situ PCR is an important diagnostic tool, especially in early and doubtful cases of leprosy.

## DETECTION AND MOLECULAR SEROTYPING OF GROUP B *STREPTOCOCCUS* IN FATAL NEONATAL PNEUMONIA IN CHINA

**Submitted by Jianghong Deng**

Jianghong Deng, Yonghong Yang  
*Beijing Children's Hospital, Capital Medical University, Beijing, China*

**INTRODUCTION:** Group B *Streptococcus* (GBS) has been recognized as an important pathogen in neonatal infectious disease. However, there are few data on the prevalence of neonatal GBS infection in China.

**OBJECTIVE:** Our aim was to estimate the infection rate of GBS in neonatal pneumonia in China and identify distribution of the GBS serotype.

**METHODS:** We retrospectively studied 200 children with fatal neonatal pneumonia who died between 1953 and 2004; 34 fatal neonatal cases without any infectious disease were used as a control group. Paraffin-embedded lung tissues were collected for total genomic DNA extraction. Polymerase chain reaction (PCR) and Southern blotting were used for GBS detection and molecular serotyping.

**RESULTS:** (1) The positive rate of GBS in the pneumonia group was significantly higher than that in the control group (PCR: 26% vs 3% [ $P < .01$ ]; Southern blot: 65% vs 18% [ $P < .01$ ]). (2) The positive rate in neonates younger than 7 days was significantly higher than that in neonates older than 7 days (PCR: 37% vs 13% [ $P < .01$ ]; Southern blot: 72% vs 52% [ $P < .05$ ]). (3) Risk factors were identifiable for most GBS-positive cases. (4) In the pneumonia group, 22 GBS-positive cases were serotypable: 7 cases were identified as serotype Ia, 6

cases were serotype III, 5 cases were serotype II, and 1 case was serotype Ib.

**CONCLUSIONS:** In China, GBS is an important pathogen in fatal neonatal pneumonia, especially in early-onset cases. Serotypes Ia, III, and II were the most common serotypes identified.

## PERIPHERAL BLOOD COUNT FOR DENGUE SEVERITY PREDICTION: A PROSPECTIVE STUDY IN THAI CHILDREN

**Submitted by Nanthakorn Eu-Ahsunthornwattana**

Nanthakorn Eu-Ahsunthornwattana<sup>a</sup>, Jakris Eu-ahsunthornwattana<sup>b</sup>, Usa Thisyakorn<sup>a</sup>

<sup>a</sup>King Chulalongkorn Memorial Hospital, Bangkok, Thailand; <sup>b</sup>Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

**INTRODUCTION:** Dengue viral infection has a wide range of severity levels and requires different levels of medical attention. Early severity prediction using clinical features is difficult. Certain lymphocytic subtypes can be used to predict severity; we postulate that peripheral blood counts can also predict severity, which would be more useful in smaller rural hospitals.

**OBJECTIVE:** We aimed to compare the peripheral blood counts between patients with mild dengue infection and those with severe dengue infection and identify simple yet sensitive early severity predictors.

**METHODS:** We enrolled 91 patients with serologically confirmed dengue infection who were admitted to King Chulalongkorn Memorial Hospital. Their leukocytic counts on admission were compared. Potential predictors were identified by using receiver-operating-characteristic analysis.

**RESULTS:** Compared with patients with mild infection, those with severe infection (dengue hemorrhagic fever grade II or worse) had a higher leukocyte count (3580 vs 3050 cells per  $\mu\text{L}$ ;  $P = .04$ ), and fewer had leukopenia on admission (70% vs 89%;  $P = .03$ ). They also had a lower percentage of "typical" lymphocytes (24% vs 40%;  $P = .02$ ). Two predictors were identified; either one classified ~19% of all admitted patients as being at low risk. Typical lymphocyte counts of  $<40\%$  excluded patients with mild disease with 89% sensitivity and 24% specificity (negative predictive value: 77%; positive predictive value: 45%). A combination of parameters [(white blood cells per  $\mu\text{L}$ ) + 470  $\times$  (% typical lymphocytes) + 5  $\times$  (atypical lymphocytes per  $\mu\text{L}$ )  $\geq -14\ 950$ ] improved the sensitivity and specificity to 92% and 26% (negative predictive value: 82%; positive predictive value: 46%).

**CONCLUSIONS:** The absence of leukopenia and a low percentage of typical lymphocytes predict severe dengue illness. Simple hematologic parameters may be used to reduce unnecessary admissions of patients with sus-

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