ESPID—Abstracts for Oral Presentations

168 CAN VIRUS LABORATORY HELP IN THE MANAGEMENT OF INFANTS HOSPITALIZED FOR SUSPECTED SEPSIS?

R. Dagan, C.B. Hall, K.R. Powell and M.A. Menegus. Dept. Ped., Clin. Micro., Univ. Rochester, Rochester, N.Y., U.S.A.

Young infants hospitalized with signs of sepsis are generally evaluated and treated for bacterial diseases, but only a few are culture positive. The possible impact of virus diagnosis in the routine treatment of such infants was not previously studied. We studied prospectively from July 1, 1982 to June 30, 1984 233 previously healthy infants < 3-months-old hospitalized for suspected sepsis in order to determine: 1) presence of bacterial and viral pathogens; 2) the ability of the virus laboratory to provide the appropriate diagnosis within 72 hrs from admission. Bacterial infections were found in 23 infants (bacteremia - 5, bacteremia + meningitis - 4, UTI - 4, Bacterial gastroenteritis - 4, soft tissue/skeletal infect. - 6). Virus was detected in 138/233 (65%) infants (positive culture - 132, IFA - 34, CIE - 3). The most commonly detected viruses during the summer were enteroviruses (EV) - 63% of infants. During the winter, the most common viruses were respiratory syncytial virus and influenza A virus - 65% of the infants. Of the EV infected infants virus was isolated from blood, CSF or both in 63%. Virus was detected in 33% of the virus-positive infants within 24 hours of admission, 56% within 48 h and 64% within 72 h. Viral infections cause most hospitalization for suspected sepsis in infants < 3-months-old, and can often be detected early enough to influence management decisions.

169 C-REACTIVE PROTEIN IN VIRAL AND BACTERIAL INFECTIONS

A Putto, O Meurman, O Ruuskanen. Depts. Paed. and Virol., Turku Univ. Hosp., Finland

Determination of serum C-reactive protein (CRP) has been suggested to be helpful in distinguishing bacterial from viral infections. We studied CRP in 176 children with respiratory virus infection and 97 children with bacterial or probable bacterial infection. Thirty-eight percent of the children with adenovirus infection (N=58), 20% with influenza (N=15), none with parainfluenza (N=26) and 13% with RSV infection (N=77) had CRP more than 40 mg/l. The mean CRP (±SD) values were 41±48 mg/l, 23±24 mg/l, 10±10 mg/l and 17±25 mg/l, respectively. In 29 viral pneumonias the mean CRP was 41±48 mg/l. Whereas 22 children with bacterial type pneumonia (lobar infiltrates and good clinical response to antibiotic therapy within 12 - 24 hours) had the mean CRP 133±61 mg/l. If the duration of symptoms was more than 12 hours all 39 children with septic infection and 78% of 36 children with urinary tract infection had CRP more than 40 mg/l. The mean CRP values were 115±71 mg/l and 89±61 mg/l, respectively. In conclusion, elevated CRP values (> 40 mg/l) are typical for bacterial infections, but may also be recorded in some viral infections.

170 RAPID DIAGNOSIS OF RESPIRATORY VIRUS INFECTIONS IN CHILDREN

O Ruuskanen, O Meurman, A Putto, J Mertsola, H Sarkkinen. Depts. Paed. and Virol., Turku Univ. Hosp., Finland

During 1980 - 1984 rapid diagnosis of respiratory virus infections (adeno-, influenza A and B, parainfluenza 1, 2 and 3, respiratory syncytial viruses) was extensily tested. Nasopharyngeal mucus from febrile children was aspirated, stored at room temperature or at 4°C overnight and tested for the presence of viral antigen with radioimmunoassay. During the study period 821 children were found to have a respiratory virus antigen in nasopharynx. 190 children had adenovirus infection, 103 influenza virus infection, 127 parainfluenza virus infection and 401 children had RSV infection. When tested for specific IgG responses in paired sera 93% of the children with adenovirus antigen and 92% of the children with RSV antigen in nasopharynx developed a significant titer increase. Rapid virus diagnosis proved to have great clinical value. The influenza and RSV epidemics were rapidly recognized. The specific etiologic diagnosis of highly febrile children had marked influence when the necessity for antibiotic therapy was considered.

171 BRONCHO-ALVEOLAR LAVAGE IN PULMONARY VIRAL INFECTIONS IN CHILDREN.

Grimfeld A., Sardet A., Bernaudin J. F., Bricout F., Feldmann D., Tournier G. Univ. Depart. Of Pediatric Pneumology. Virology, Biochemistry. Hop. Trousseau. Paris ; Univ. Depart. of Pathology, Creteil, France.

Fifteen infants with acute pneumonia, mean age 11 months (Group I) and 24 immuno-depressed (ID) children with severe interstitial pneumonitis, mean age 8 1/2 years (Group II) were studied using broncho-alveolar lavage (BAL). Each BAL fluid (F) examination comprised : 1) cytological examination (CE) 2) virological study 3) total proteins (TP) and Ig classes (G, A, M) concentrations quantification. Specific activity (Act) of anti-cytomegalovirus (CMV) Ig anti bodies (Ab) was titrated simultaneously in BALF and sera by ELISA method, only in ID. Group I : 7 viruses were isolated : para influenza type 1 (1), 3 (1), adenoV type 1 (1), 2 (1), 6 (1), RSV (2) ; CE was normal (4) or showed an increase in polymorphonuclears (PN) (2) or lymphocytes (L) count (C). Group II : 2 viruses were isolated : measles (1) RSV (1) with increase in PNC and in IgG/TP ratio ; in 2 other cases (with bone marrow transplantation) o local pulmonary production of anti CMV IgG/Ab was observed (increase in BALF Act/sera Act ratio) with LC increase. In conclusion BAL in children is a safe productive mean in diagnosis of virus infection responsible for severe pneumonitis and reveals a local correlative increase in PNC or LC and IgG production.

172 BACTERIOLOGICAL YIELD OF BRONCHIAL ASPIRATION IN A PEDIATRIC POPULATION

A Malfroot, D Pierard*, J Levy, I Dab. Depts. Paed. & Microbiol* Akademisch Ziekenhuis V.U.B. and St. Peter's Hospital - Brussels - Belgium

Of the 780 respiratory endoscopies performed over the last 4 years in children, aged 1 week to 12 years, 299 were accomplished for persistent infection, despite antibiotic treatment in most of the cases. Positive bacterial cultures were obtained in 99 bronchial aspirations (BA) (33%) : 50% Hemophilus influenzae (30% were β lactamase positive), 13% Streptococcus pneumoniae, 11% Brahmanella catarrhalis (40% were β lactamase positive) and the remaining 26% consisted of Staphylococcus aureus, Streptococcus pyogenes, Escherichia coli, Pseudomonas aeruginosa, Klebsiella pneumoniae and Enterobacter, none of them exceeding 6%.

In another 103 patients suffering from primary tuberculosis with abnormal chest X-ray, Mycobacterium tuberculosis was cultured in BA in 21% of all samples. However, gastric aspiration in the same group gave positive cultures in 26%.

We conclude that in persistent respiratory infection in children, Hemophilus influenzae seems to be more frequent than expected. We find that for longstanding respiratory infection, bronchoscopy is often efficient in obtaining positive bacterial results. Its use could be extended to severe acute respiratory infection to increase correct choice of antibiotics and improve final prognosis. The bacteriological efficiency is less evident in primary tuberculosis.

173 RAPID IDENTIFICATION OF HEMOLYTIC GROUP A STREPTOCOCCI IN PEDIATRIC OFFICES BY THE DIRECTIGEN^R TEST.

H.E. Gnehm and M. Salfinger, University Children's Hospital and University Laboratory of Mikrobiology, Zürich, Switzerland.

A prospective study for rapid identification of β-hemolytic Group A streptococci (GAS) in patients with a clinical diagnosis of sore throat or upper respiratory tract infection was carried out by six pediatricians in office practice. The Directigen^R kit (DR) was used to directly detect GAS specific antigen on throat swabs. The test readings were compared to culture results of duplicate throat swabs processed at an University Microbiology Laboratory using standard methods for identification and quantitation of β-hemol. streptococci. A total of 191 throat swabs were obtained. Of 60 bacteriologically grown β-hemol. streptococci 47 (78%) belonged to Group A, 6 (10%) to Group C, 4 (7%) to Group G and 3 (5%) to Group B. None of the non-GAS gave a positive reaction with DR. Of 186 evaluable DR tests 173 were in agreement with the culture results (93%). Specificity of DR was 99%, sensitivity, predictive value of a positive and a negative test were 75, 97 and 92% respectively. Probably because of the small number of positive tests, a great interexaminer variation of the sensitivities was observed. Sparse growth of GAS resulted more often in a negative (80%) than in a positive (20%) DR, whereas heavy growth was followed in 91% by a positive test. Of all cultured β-hemol. streptococci 20% could not be detected by DR because of the specificity of the test for GAS. 25% of isolated GAS, mainly those with low colony counts, were missed by the DR in the still ongoing study. Providing results within 70 minutes the DR is practicable in the office laboratory.