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THE UNPRESCRIBED USE OF ANTIBIOTICS IN CHILDREN ADMITTED TO HOSPITAL. Malliswari Challapalli and Daniel G. Cunningham (Spon. by George F. Smith)

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We have previously reported that approximately 7% of children who present for medical care with common respiratory illnesses are already being treated with unprescribed antibiotics. The purpose of the present study is to determine the incidence of antibiotic abuse (self-medication with unprescribed antibiotics) in children with more serious febrile illnesses. It is anticipated that we will have 400 patients by 4/85. To date we have collected information and urine samples at the time of admission from 104 febrile patients. 8 of 104 (7.69%) children were found to have antibacterial activity in the urine as determined by bioassay. Of the 8 positive specimens only 2 were from children whose care takers admitted to antibiotic abuse. One received erythromycin and the other penicillin. Sources of antibiotic were sibling's erythromycin and amoxicillin from a previous illness. Data related to 1) duration of illness, 2) patient age, 3) symptom categories (URI, Pneumonia, Asthma, Gastroenteritis, Sepsis, Fever), 4) similar illness in the past, 5) presence of siblings, 6) primary care taker's marital status, 7) and employment were analyzed statistically. The incidence of abuse was significantly higher in the asthmatics ($P < .01$) and no correlation was demonstrated to incidence of abuse and other mentioned variables. We conclude that antibiotic abuse is a significant problem and questioning was not a reliable abuse direction technique. The incidence of abuse in this study is similar to previously reported incidence in outpatients from a different geographical area.

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BUCCAL CELLULITIS (BC) RE-EVALUATED. Stephen A.

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Previous studies of BC have reported conflicting data on the incidence of co-existent bacteremia and meningitis. Otitis media (OM) is reportedly found in 75% of patients and, when unilateral, is said to always occur on the ipsilateral side (suggesting lymphangitic spread to the cheek). To more accurately define the clinical picture of BC, we reviewed the records of 55 children with a clinical diagnosis of primary (no overlying skin trauma) BC. There were 32 males and 23 females with a median age of 11 (range 1.5-64) months. OM was present in 22 (40%) patients. The contralateral ear was involved in 5 of 13 patients with unilateral OM. Blood cultures were positive in 27 (53%) of 51 patients and grew *H. influenzae b* (HIB) in 25 (92.5%). Two infants with *S. pneumoniae* and *S. agalactiae* infections were clinically indistinguishable from the remaining patients. Cellulitis cultures were positive in 6 (17%) of 35 attempts. Cerebrospinal fluid (CSF) cultures were positive in 3 (9.4%) of 32 patients; one additional child whose CSF was not initially examined later developed meningitis. These data suggest that: (a) bacteremia is commonly present in BC, (b) the pathogenesis of BC does not usually involve lymphangitic extension from the middle ear, (c) lumbar punctures should always be performed because of the associated risk of meningitis and (d) BC is predominately but not exclusively due to HIB. Initial therapy should include parenteral antimicrobial coverage for HIB and Gram positive organisms.

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VARICELLA (VAR) INFECTION IN DAYCARE CENTERS (DCC).

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There are no published data on the epidemiology or economic consequences of VAR infections in DCC. We investigated the VAR attack rate and financial burden due to VAR infection on families of children attending DCC. We administered a retrospective questionnaire to parents of children attending four of the largest DCC in Mobile during the winter/spring of 1983/84. At that time VAR was epidemic in the community. Data from 307 enrollees showed that 71 (42%) of 171 reportedly susceptible children developed clinical disease. The mean (range) number of days lost per child from the DCC was 5.4 (2-14). Forty-one (78%) of the 55 families affected lost a mean (range) of 3.9 (0-15) days of work. This included a total of 90 days of sick leave, 49 days off without pay, 18 days off with pay and 9 vacation days. Sixteen (29%) of the families lost a mean (range) of \$146.00 (\$35-400.00) in wages, not including ongoing DCC enrollment fees. Additional medical bills/babysitting costs for 41 children totaled \$1258.00 (mean=\$31.00/child). These data suggest that VAR infections in DCC have a significant financial impact on families. Immunization of susceptible DCC enrollees with live attenuated varicella vaccine, if found to be safe in the daycare setting, may prevent the spread of infection and reduce the financial strain on families.

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STAPHYLOCOCCUS EPIDERMIDIS (S. EPI.) SEPSIS

IN THE INTENSIVE CARE NURSERY (ICN). H. Chawla, M. Curtis-Cohen. Dept. Pediatrics, Hahnemann Univ., Philadelphia, Pa. (spon. by B. Falkner)

S.epi is known to cause infection in neonates with indwelling catheters or ventricular shunts. Recently it has been associated with infections in infants with no such foreign bodies. In our ICN from July through October S.epi was the most common cause of sepsis, responsible for 6/10 cases. BW and gest. age in these 6 infants was 1425 ± 434 grams and 31 ± 3 weeks (mean $\pm$ SD). All infants had umbilical venous (1) or arterial (5) catheters which were removed 7-45 days prior to onset of symptoms. 4 infants had peripheral venous catheters in place. Onset of symptoms occurred between 11 and 54 days of age. In all infants symptoms were indolent and present for >24 hours prior to evaluation for sepsis. They included: tachypnea and hypoxemia (2), apnea and bradycardia (3), feeding intolerance (3), lethargy (5), and fever (1). 3 infants were started on ampicillin and gentamicin with no improvement, 2 were begun on vancomycin, and 1 was untreated prior to 2 sets of positive blood cultures. S.epi sensitive to vancomycin and chloramphenicol was isolated from the blood of all 6 infants. After 24 hours of vancomycin all improved dramatically. All urine and CSF cultures were sterile.

Although S.epi frequently contaminates cultures, the organism must be regarded as a potential pathogen in the ICN and treated aggressively.

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INTRAVENOUS HUMAN IMMUNE GLOBULIN PREVENTS NEUTROPENIA, NEUTROPHIL SUPPLY EXHAUSTION AND DEATH IN EXPERIMENTAL GROUP B STREPTOCOCCAL SEPSIS. RD

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In neonatal animals with group B streptococcal (GBS) sepsis, neutropenia and depletion of the marrow neutrophil (neut) reserves are prevented and survival markedly improved by murine hybridoma anti-GBS antibody. This product is not practical for use in human infants, however, because of its non-human origin. Therefore, we tested intravenous immune globulin (IVIG) for its effect on blood and marrow neut kinetics and survival. Groups of 15-30 neonatal rats were transthoracically inoculated with 10^5 GBS/gm. All animals which received 40 ml/kg (containing 5 gm% IgG) lived (albumin control survival = 0%), 95% given 20 ml/kg survived, and 20% given 2 ml/kg lived. Even when delayed for 2h, 20 ml/kg resulted in 100% survival. Survival fell to 57% when IVIG was delayed for 6h and to 46% at 22h. IVIG also facilitated the neut inflammatory response: 1) IVIG recipients released neut more promptly from the marrow (after 2h, IVIG animals had released $5.5 \pm 0.8 \times 10^6$ neut from reserves vs $1.2 \pm 0.6 \times 10^6$ in controls, $x \pm \text{SEM}, p < 0.05$), 2) IVIG prevented neutropenia ($2763 \pm 216/\text{mm}^3$ IVIG vs $148 \pm 38/\text{mm}^3$ control, $p < 0.001$), 3) neut supply did not become exhausted in IVIG recipients ($4.5 \pm 0.5 \times 10^6$ reserve neut 20h after inoculation vs $0.3 \pm 0.1 \times 10^6$ in controls, $p < 0.001$), 4) accumulation of neut at the site of GBS inoculation was more rapid (myeloperoxidase-a neut marker-in lung 2h after inoculation was 1.7 ± 0.2 units vs 1.0 ± 0.1 in controls, $p < 0.05$). Therefore, IVIG markedly facilitated the neut response and improved survival. These findings provide support for a trial of IVIG in infected human neonates.

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SAFETY AND IMMUNOGENICITY OF A LIVE ATTENUATED RHESUS

MONKEY ROTAVIRUS VACCINE. Cynthia Christy, John J. Treanor, H. Paul Madore, Robert M. Chanock, Albert Z. Kapikian, Raphael Dolin (Spon. by Caroline B. Hall). University of Rochester School of Medicine, Departments of Medicine & Pediatrics, Rochester, NY and the National Institutes of Health, Bethesda, MD

Rotavirus is a major worldwide cause of acute gastroenteritis in children. We recently evaluated a rhesus monkey rotavirus (RRV-1) which shares neutralization specificity with human serotype 3, as a potential vaccine candidate. We administered RRV-1 (10^6 TCID₅₀) or placebo orally to 40 adult volunteers who had low or undetectable levels of serum neutralizing antibody under double-blind conditions. Volunteers were evaluated daily for signs and symptoms of gastroenteritis, and stools were examined for RRV-1 by ELISA and tissue culture. Administration of RRV-1 did not induce illness. RRV-1 was shed in the stools of 11/21 (53%) vaccinees for 1 to 6 days without transmission of RRV-1 to other subjects, although one placebo recipient shed wild-type rotavirus from a community-acquired infection. Fourfold or greater serum neutralizing antibody rises to RRV-1 were noted in all vaccinees (21/21) and in 1/18 placebo recipients. Serum antibody rises were also demonstrated by immune adherence hemagglutination in 20/21 volunteers who received RRV-1 and in 1/18 who received placebo, and by complement fixation in 17/21 who received RRV-1 and 0/17 who received placebo. Transient asymptomatic serum ALT and AST rises were seen with similar frequencies in RRV-1 (3/21) and placebo (5/19) recipients. Thus, RRV-1 appears to be attenuated and highly immunogenic in young adults, and warrants additional study in children.