Acute Bacterial Meningitis in Thai Children

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OBJECTIVE: This is a continuation of a study of bacterial meningitis in children at Children's Hospital, Bangkok, Thailand. The objectives of this study are to determine the etiology of these infections, determine the antibiotic sensitivities of the causal agents, and compare 3 antimicrobial regimens for the treatment of these patients.

DESCRIPTION: All patients with suspected bacterial meningitis admitted to Children's Hospital were included in this study. Antimicrobial therapy was based on order of admission. Daily administration consisted of (1) 10 megaunits of intravenous penicillin G sodium plus 50 mg/kg of intramuscular kanamycin sulfate, or (2) the same dosage of penicillin plus 100 mg/kg of intramuscular chloramphenicol, or (3) 150 mg/kg of intravenous sodium ampicillin. All regimens were divided into 4 doses which were given at 6 hour intervals.

Diagnostic lumbar punctures were made on the first day of hospitalization and spinal fluids were examined for appearance, protein, sugar and chloride content, cell counts and differentials, and bacteria as revealed by gram stains and cultures. Other procedures included routine blood counts, urinalysis, stool examinations in patients with diarrhea, blood sugar determinations and bacteriological cultures of cerebrospinal fluid and blood.

Response to therapy was evaluated by the usual clinical criteria, including duration of fever, improvement of neurologic status, and decrease in peripheral blood leucocyte count with a return of the differential count toward normal and in improvement in C.S.F. findings (including pressure, cell count, percentage of polymorphonuclear leucocytes, and glucose and protein content). Outcome of therapy was evaluated according to the patient's courses in the hospital, clinical status at the time of discharge and, whenever possible, a follow-up study one year after discharge.

PROGRESS: Seventeen of the 24 patients studied during this period were less than one year old and all but one were seriously ill when hospitalized. Organisms isolated from CSF specimens are shown in Table 1. Concomitant septicemias were noted in the patients infected with Escherichia coli, Candida albicans and in

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2 of the 5 patients infected with Diplococcus pneumoniae. Antibiotic sensitivity tests indicated that all isolates of D. pneumoniae were sensitive in vitro to penicillin and ampicillin and all isolates of H. influenzae were sensitive to chloramphenicol and ampicillin. Including the 44 patients studied before this reporting period, the mortality rate of patients infected with D. pneumoniae was 47.6% as compared with 41.1% in patients infected with H. influenzae.

SUMMARY: A study of acute bacterial meningitis in Thai children has been continued. Results to date indicate that the causal agent is D. pneumoniae or H. influenzae in most cases. While all isolates of D. pneumoniae were sensitive in vitro to antibiotics in each regimen, the mortality rate was 47.6%. The mortality rate of patients with H. influenzae meningitis was 41.1%. There are too few patients in each group to enable meaningful comparisons of therapeutic regimens at this time.

Teble 1 Purulent Miningitis in Children by Etiology and Outcome

	Clinical result		Case fatality
	Lived	Died	%
Diplococcus pneumoniae	4	1	20
Haemophilus influenzae	3	1	25
Salmonella newport	1	0	0
Escherichia coli	0	1	10
Candida albicans	1	0	0
Negative cultures	8	4	33
Total	17	7	29.1