

behaviors in this study is due to differences in the studied population. The current study was home-based and all adolescents had the chance to participate in the study. Although the prevalence of violence-related behaviors in this study was lower than that of other parts of the world [2], the prevalence of some behaviors such as participation in physical fighting and being injured was higher than that of 12-19 year old students in Malaysia [3]. Consistent with other studies, the current results show that socio-demographic factors are effective factors in committing violence-related behaviors [3-5].

The obtained findings indicate high prevalence of intentional injuries among adolescents, particularly males. Since numerous studies report effectiveness of rage control programs in preventing violence, planning for such programs and workshops can have a significant role in decreasing violent behaviors among adolescents.

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Etiology of Acute Bacterial Meningitis in Hospitalized Children in Western Uttar Pradesh

We retrospectively studied clinical and etiological profile of acute bacterial meningitis in hospitalized children for two consecutive years at a pediatric hospital in western Uttar Pradesh. Etiological diagnosis could be made in 30 (44.8%) out of 67 cases with either culture or latex agglutination test. Pneumococcus was the commonest pathogen found in 17 (25.4%) cases. The overall mortality was 10.5%.

Key words: *Epidemiology, Pneumococcus, Pyogenic Meningitis.*

There is a paucity of data on etiology of acute bacterial meningitis (ABM) in different regions of the country. In this retrospective study, we report the etiology and outcome of children with ABM hospitalized in a

secondary care private sector pediatric hospital in Western Uttar Pradesh.

All children above 1 month of age, admitted from January 2009 through December 2010, with clinical and laboratory evidence of ABM were included. Cases were categorized as 'suspected', 'probable' and 'confirmed' ABM based on published criteria [1]. Cerebrospinal fluid (CSF) culture and latex agglutination test (LAT) were done to identify etiological agents.

Among 3543 admissions, 67 (1.9%) met the inclusion criteria of probable ABM cases; 46 (68.7%) were males. Thirty-six cases had cell CSF count <100 and therefore not included in this analysis. History of immunization was available in only 10 cases; however, none had received Hib or pneumococcal vaccines. The mean (SD) age of children was 41.5 (± 26.9) months. Seasonality was evident as 41 (61.2%) cases occurred during September to November. Fever (91%), altered sensorium (62.7%), vomiting (50.8%), seizures (47.8%) and refusal of feeds (23.9%)

TABLE I AGE-WISE DISTRIBUTION OF CASES WITH CAUSATIVE ORGANISMS

Age-group	Cases		<i>Hemophilus</i>	<i>Streptococcus</i>	<i>Neisseria</i>	Others # (N=8)
	Probable* (N=67)	Confirmed** (N=30)	<i>influenzae type b</i> (N=3)	<i>pneumoniae</i> (N=17)	<i>meningitides</i> (N=2)	
1-3 mo	15	7	0	0	0	7
3-12 mo	18	8	2	5	0	1
1-5 y	17	8	1	5	2	0
5-18 y	17	7	0	7	0	0

*Probable case: a suspected case with CSF leukocytosis of >100 WBC/cmm, protein >100 mg/dL, or glucose <40 mg/dL; ** Confirmed case: a probable case with a positive bacterial isolate in CSF culture or positive LAT; #Others: Gram negative bacilli (n=7) and *Staphylococcus aureus* (n=1).

were main presenting features. Circulatory collapse was present at admission in three children. Neck rigidity and Kernig's sign were noted in 31.3% and 22.4% of cases, respectively. In infants, bulging anterior fontanel was the most frequent clinical sign, present in (75.8 %) (25 out of 33). History of having been treated with some antibiotics prior to admission was recorded in 24 (35.8 %) patients. The CSF was turbid in 27 (40.3%) cases. Gram stain detected bacteria in 29 (43.3%) cases; Gram positive diplococci (n=12), Gram positive cocci in clusters (n=3), Gram negative diplococci (n=2), Gram negative rods (n=10) and Gram negative coccobacilli (n=2). However, the Gram stain results correlated poorly with culture and LAT results.

Etiological diagnosis based on CSF culture or LAT was established in 30 (44.8%) children. CSF culture was positive in 24 (35.82%) cases out of 67 and LAT was positive in 6 (42.85 %) out of the 14 cases where it was employed. *Streptococcus pneumoniae* was found in 17 (25.37%), *Haemophilus influenzae type b* in 3 (4.5%), *Neisseria meningitides* in 2 (3%), *Escherichia coli* in 5 (7.5%) and *Staphylococcus aureus*, *Klebsiella* and *Pseudomonas* in one case each.

All children were treated according to standard protocol. The duration of stay ranged from 5 to 16 days, average 9 days). The most frequent complication during hospital stay was persistent focal seizures (n=8). There were 7 (10.5%) deaths; 4 in children less than one year of age. In these seven children, *S. pneumoniae* was isolated from CSF in three cases and *E. coli* and *Klebsiella* in one each.

In this small hospital based study, we documented pneumococcus to be the most frequently isolated pathogen in ABM. Other studies from Northern India documented similar pattern of pneumococcal predominance [2-5]. Large-scale multi-centric studies are needed to define the etiology of ABM in diverse settings in order to make policy decisions on the appropriate preventive and therapeutic strategies.

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