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Acute Complications of Pyogenic Meningitis in Children

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ABSTRACT:

Objective: The purpose of this study is to aim acute complications of pyogenic Meningitis found in children during their stay at hospital.

Place and Duration of Study: The examination was conducted at the Pediatrics Department Samnabad Hospital, Lahore following a span of 06 months from the month of October 2018 to March 2019.

Materials and Methods: A number of 50 children from age 3 months to 12 years, suffering from The clinical features of acute bacterial meningitis were present in the examination. Patients with VP shunt associated meningitis, mental retardation, tuberculosis meningitis, and age falling under 3 months or above than 12 years were not included in the observation. CSF analysis and C/S conducted in call for clinical cases from the pathology department of the Hospital. Explicit observation was carried out for acute complications where they were required, which incorporated, blood glucose, serum electrolytes, creatinine, CT brain, PT, APTT serum osmolarity. For two weeks, patients were kept under observation for acute complications.

Results: All out of the 50 patients, children aged between 3 months and 12 years were being diagnosed as acute bacterial meningitis, were incorporated in the study. 59% among them were male and 41% were female. 50% of patients were below 1 year in age. 29% of them aged between 1 to 5 years, while 21% aged between 5-12 years. Acute complications were seen among 32% of the sufferer. Profuse acute complications were, septic shock 4%, subdural effusion 16%, cerebral edema in 2%, acute hydrocephalus in 2%, cranial nerve palsy 2% and hemiparesis 6%, Common complications such as Hydrocephalus and cerebral edema Sub-dual effusion, were found to be more common in children below age 1, while hemiparesis cranial nerve palsy and septic shock were were prevalent among children of more than age 1.

Conclusion: Acute bacterial meningitis is delirious contamination in children bringing about critical intense intricacy, mortality and horribleness. In one millennium from now our prosperity will rely on compelling immunization procedures which has diminished infection load in developed nations.

Key Words: Acute complications cerebral spinal fluid (CSF) hydrocephalus, Acute bacterial meningitis

INTRODUCTION:

Acute bacterial meningitis was recognized in the year 1805. Its known as an infection of sub arachnoid space and leptomeninges. It is more accurately described as meningoencephalitis which is an inflammatory process that includes the sub-arachnoid space, brain paranchymal, and meninges. Overall two third of instances of intense bacterial meningitis happens in youngsters beneath fifteen year age. So real weight is shared by pediatrician. In pediatric age bunch over 75% cases happen beneath multi year age. Furthermore, out of these half cases happen underneath 1 year of age. A pediatrician shares a lot of bacterial meningitis burden. According to the pediatric age group, around 75% of the infection occurs among the children below age of 5 years.

The observed Acute complication of this disease that starts to appear in the earlier stages include Syndrome of inappropriate antidiuretic hormone secretion, status epileptics, septic shock, disseminated intra-vascular coagulation, cranial nerve palsy, ventriculitis, cerebral oedema, subdural effusion, hemiparesis. Delay in acquiring language, behavioral issues, Visual impairment, Developmental retardation seizures, and hearing impairment are considered to be long term sequelae of the condition. Meningitis is a great cause of high rate of mortality and morbidity albeit therapeutic development and high intensive care. As observed in pediatric populace, it is one of the ten serious causes of mortality by an infection. It also has death rate of 8-20%, following by a relapse rate of 3-4%. If acute bacterial meningitis does not undergo a treatment on the right time and in a proper manner, 10-20% of the cases sprout neurodevelopment sequelae. According to a report, 5000 mortality cases and even twice as many as retard cases are observed in infants are caused by this disease in Pakistan. In spite of advances in avoidance and restorative administration intense bacterial meningitis remains a vital reason for morbidity and mortality, which takes life of such a large number of kids as well as live extensive number of them impaired, disabled, hard of hearing



and visually impaired, causing a great deal of issues for family, network, just as a nation.

Material and Methods:

This hospital based study was carried out at Samnabad Hospital, Lahore, in the Department of Pediatrics, started from the month of October 2018 to March 2019. All the patients, admitted in Pediatric Department showed symptoms of acute bacterial meningitis and studied by CSF examination, were included in the observational study. children with ventriculo-peritoneal shunt associated meningitis, tubercular meningitis, children with mental retardation or other neurological disease and infants lesser than 3 months or more than 12 years, were not included in the study. Itemized history and physical study was performed on all subjects and microscopy, gram staining, cerebrospinal fluid analysis, CSF culture and sensitivity were performed. Certain tests such as Serum electrolytes, urea, serum osmolarity PT/APTT, CT Brain, creatinine were performed on patients according to their specific diagnosis. For two weeks, patients were given Standard treatment for acute bacterial meningitis and were put under observation for acute complications for a span of two weeks. Results of the performed tests were jotted in form of died, left against medical advice (LAMA) discharge, and transferred neurosurgery Ward to manage the complications.

Results

Amid this investigation all out number of admission to pediatric division of Samnabad Hospital showing Emergency were 4022. Complete number of subjects enlisted were 50, involved 1.24% of all out confirmation in pediatric unit. Out of these 50 patients with intense bacterial meningitis, 65% patients were male and 35% patients were female. Half patients were underneath the age of 1 year, 31% patients were between 1-multi year age years. The more were 0.25 to 5 years age for example beneath 5 years age (81%). 19% patients were somewhere in the range of 5 and 12 years. There was a change in prescribed antibiotics administered to 10 subjects (20%). The additional antibiotics were ceftazidime, vancomycin and meropenem. Intense complications that were observed amid the observational study were: Subdural effusion was found in 16% of subjects. 11% children were less than one year: and 1% subjects were more than one year in age. Hydrocephalus and cerebral edema were 2%. Subdural effusion were most likely found in infants under 1 year age (P. value < 0.005), while septic shock, hemiparesis, cranial nerves palsy and were common in children above one year age (P. value < 0.005).

Table 1: Acute complications n=50

Complications	Frequency (Percentage)
Empyema	8 (16)
Hemi and paraparesis	3 (6)
Septic shock	2 (4)
Cranial nerve palsy	1 (2)
Acute hydrocephalus	1 (2)
Cerebral oedema	1 (2)
Total	16 (32)

Discussion:

During the observational period, a total number of patients admitted in the Pediatric Department were 4022, whereas, intense bacterial meningitis represented 1.24% of all our pediatric hospitalizations amid the investigation time frame. The mean period of introduction was 34.33 months comparable level of hospitalization to the pediatric Unit because of intense bacterial meningitis has been accounted for in national and Global examinations. Ahmad I, et al detailed a recurrence of 1.7% of all Pediatric confirmation because of this illness in Pakistan while the Worldwide examinations revealed recurrence of 1.5% by Chinchankar et al, 2.6 by Kabra et al. The people group predominance in Worldwide investigations is

3/100,000 in USA, Thirumoothi MC, 16/100,000 in UK, Fortnum HM, Davis Air conditioning, 45.8/10,000 in Brazil . In the present examination the general level of intense neurological complication is 32%.

The different intense complications and their rate in the present examination is sub-Dural effusion (16%), Hemiparesis (focal neurological deficit) is (6%) septic shock (4%), hydrocephalus 2%, cerebral Oedema (2%), cranial nerve paralysis (2%). Comparable and similar intense complications has been accounted for in national and universal examination. A neighborhood think about by Javaid BK et al, detailed a similar intense confusions of meningitis in 29% of patient which is practically identical to our investigation. In other



investigation in India by Chinchankar N et al, a similar intense inconvenience were accounted for in 40% of patient which incorporates subdural radiation (18.5%), Hemiparesis (7.4%), Hydrocephalus and cerebrum ulcer (3.7%), cranial nerve paralysis 5.5% and cerebral dead tissue (10.5%), which is practically identical to our examination which somewhat increment incranial nerve paralysis and cerebral localized necrosis, however in general comparable outcomes. In other examination in Yemen by Sallam AK et al, the general intense intricacy announced were 23% and different intense confusion were same as in our investigation. In another examination by Sergio An et al in Brazil somewhere in the range of 2003 and 2008 the general intense confusion rate 38.6% and same intense inconvenience has been accounted for. While another investigation Bari An, et al announced a similar intense inconvenience however with little lower rate 17% and 19.4% into gatherings. What's more, comparable outcomes were seen with 24% difficulties rate in an investigation in curve Dis tyke by Qazi SA et al., However, these little contrasts in different

investigations might be because of right on time or late introduction to clinic, nearby offices accessible in medical clinic inoculation status of patient and contrasts invaccination inclusion in rustic versus Urban zones that needs further examinations and research. In our investigations there is critical contrast in different intense complexity in little and more established youngsters. Sub length emission, Hydrocephalus and cerebral Oedema were increasingly normal in kids beneath 1 year when contrasted with more established youngsters (P. esteem < 0.005) while hemiparesis, septicshock and cranial nor paralysis were basic above in more seasoned youngsters (P. esteem < 0.005).

Conclusion: Acute bacterial meningitis is a dire infection among the children that lead to acute complications, death and morbidity. In one millennium from now our prosperity will rely on overall examination for example of anti-infection opposition, persistent advancement of new antimicrobials, increasingly Sensible utilization of medications we as of now utilize and powerful immunization methodologies which has diminished ailment load in well developed nations

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