

# Letters to the Editor

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Neonatal salmonella meningitis.

Sir,

Salmonellosis is a bacterial infection acquired through faecal contamination of water. It can be contracted through meat and dairy products also. Since the discovery of chloramphenicol in the year 1948, mortality and morbidity by salmonella was reduced drastically. But now with emergence of chloramphenicol-resistant strains, cephalosporins like cefotaxime, ceftriaxone and newer fluoroquinolones such as ciprofloxacin are likely to find a place in the treatment modality, especially in cases of established bacteremia and meningitis. We had a case of salmonella septicemia and meningitis which relapsed and died after treatment.

A 3 month old Omani female child was admitted to Rustaq Hospital with complaints of fever, vomiting and off feeds since 3 days. The child was delivered normally at full term and was fully immunized for age.

On examination, the relevant findings were drowsiness and bulging anterior fontanelle. The rest of the findings were normal.

Routine biochemistry parameters were within the normal limits. Hemogram showed a hemoglobin of 8.7 gm% and slightly raised white blood cell (WBC) count, 13.9 K/uL. Lumbar puncture was carried out and CSF examination showed raised protein=0.11g/L glucose=0.5 mmol/L, total WBC count 800 cu.mm with a differential of 80% polymorphs and 20% lymphocytes. Grams staining showed gram negative bacilli and abundant pus cells. CSF when cultured grew Salmonella group D, identified by API - 20 E and serology, showing sensitivity to norfloxacin, cephadrine, ampicillin, chloramphenicol, gentamicin, amikasin, and ceftazidime.

Blood culture carried out at the same time showed the same growth and sensitivity pattern. The patient was put on cefotaxime 250 mg I/V 6 hourly and amikacin 30 mg I/V 8 hourly. During the hospital stay the patient developed convulsion once, which was managed symptomatically. The patient was discharged 2 weeks later with improved condition.

She was readmitted 2 weeks later with high grade fever, convulsions and was started on cefotaxime 300 mg I/V 6 hourly, amikacin 45 mg 8 hourly, chloramphenicol 150 mg I/V 6 hourly (only 2 doses were given as patient developed leucopenia); ampicillin 400 mg I/V 4 hourly 2 doses (after chloramphenicol was discontinued) and antiepileptic drugs along with supportive care. CBC carried out showed WBC = 4.1 K/uL with reactive lymphocytosis.

On examination there were signs of raised

intracranial pressure and ultrasonography of cranium showed dilated ventricles. Blood culture showed growth of Salmonella typhi with sensitivity as before. The patient was diagnosed to be in septic shock, coma and was managed accordingly. But the condition deteriorated and the child died the next day.

Meningitis in infants is still a dreaded disease in spite of the advent of antimicrobials. Most common organisms causing meningitis in newborns are group *B streptococci*, *staphylococcus aureus*, *Enterococcus* species, and other gram negative bacilli like *Enterobacter* species, Salmonella meningitis is a particularly serious complication of Salmonella infection in neonates and very young children. Cases of Salmonella meningitis have been reported sporadically mostly from India.<sup>1</sup> However, it forms a minor group of causative agents in studies reported from other countries. Jeusch et al<sup>2</sup> have also reported 2 cases of group D salmonellosis in neonates. Out of these, 2 neonates had septicemia and meningitis. Of these, one patient died and he noted that only children fed with artificial food suffered from salmonellosis and children on breast milk had unremarkable clinical course.

Francis et al<sup>3</sup> in their retrospective survey of neonatal meningitis occurring in Australia stated that mortality was 26% and long term sequelae were common in those with gram negative meningitis and recommended to add third generation cephalosporins to all gram negative meningitis.

Established Salmonella meningitis and bacteremia requires aggressive antimicrobial treatment with aminoglycosides, cephalosporins like cefotaxime and ceftriaxone, which have a high penetration in cerebrospinal fluid, and are proving to be an effective alternative in cases resistant to chloramphenicol. Complicated cases require prolonged treatment than the conventional 10-14 days regime. Koc E et al<sup>4</sup> have reported 2 cases of Salmonella meningitis, one of which relapsed after 4 weeks of cefotaxime treatment and was cured by Imipenem/cilastatin therapy only.

Huang et al<sup>5</sup> in their retrospective review of 15 pediatric patients with Salmonella meningitis reported that 14 surviving patients were treated with a third generation cephalosporin for at least 3 weeks and a high frequency of prolonged fever, neuroimaging abnormalities and neurologic sequelae were seen in these patients.

Salmonella meningitis is a rare concurrence in cases of salmonellosis, especially children. But due to the associated grave prognosis, this diagnosis should always be kept in mind whenever a bacterial meningitis is suspected in young children. An aggressive treatment should be initiated with third generation cephalosporins, keeping in mind the

emerging resistance to chloramphenicol. Also, the treatment should be given for prolonged duration rather than the routine 10-14 days regime.

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## Multiple sclerosis in Syria.

Sir,

Multiple sclerosis (MS) is one of the most complicated forms of demyelinating disease for which a definite cure has not yet been found. Multiple sclerosis affects people between the age of 20-40. Onset is rare before the age of 12 years or after the age of 50. Nevertheless, diagnosis and treatment in the early stages of the disease may help to avoid disability. By using highly developed, modern instruments and laboratory investigations this may help identify the problem, even though the progression is asymptomatic. The disease is comparatively rare in the orient. The prevalence rate is relatively high in cold regions, however due to immigration and the spread of civilization the disease flows over into hot countries. The rate is lower in Arab countries than in northern Europe and America. The number of cases per 100,000 per population is the following in these countries; Tunisia 5, Iraq 5, Jordan 5, Palestine 15, Syria 5, USA 30-64, Canada 70, Sweden 51, thus representing a considerable

burden on the national economy and social problems.<sup>1,2</sup>

The Syrian Arab Republic (SAR) lies on the eastern coast of the Mediterranean. The total area is 185,000 square kilometers and the Mediterranean climate generally prevails, the climate may be characterized by rainy winter and dry hot summer. The population of SAR is approximately 17 million. Twenty cases were studied at the Douma Hospital (Damascus) and in my private clinic. All patients fulfilled the Poser et al criteria for the diagnoses of MS. All patients had blood count, blood film, sedimentation rate and electrophoresis, cerebrospinal fluid (IgG and Albumin).<sup>3</sup>

Brainstem auditory potentials were performed on all patients. The brainstem auditory evoked potentials test consists of giving the patient an auditory stimulus passing from the external ear, to the medial ear, to the interior ear and finally to the pons passing through to the acoustic area to the brain. Evoked visual potential (EVP) generated in response to stimulation by a signal light flash from the eye to cerebral cortex. Magnetic resonance imaging (MRI) was performed on all patients.<sup>3,4</sup> The main defect of central nervous system gives us possible classified patients in two groups: 1) cerebrospinal involvement of the central nervous system 2) cerebral hemisphere involvement of the central nervous system.

Twenty cases of multiple sclerosis were studied (11 females 55% and 9 males 45%). Their ages varied between 20-40 years, the average age was 28,2 years, the patients seemed to fall into two groups: Group I - 12 patients of the first group suffered from cerebrospinal tract involvement, complained of weakness of the lower extremities paresthesia, increased tendon reflexes, pyramidal signs, decrease or absence of abdominal reflex, nystagmus and vertigo. Group II - 8 patients of the second group which involved the cerebral hemisphere of the central nervous system complained from ataxia disturbances, vertigo and positive symptoms (Romberg position, finger-nose, knee-ankle etc) increased tendon reflexes and pyramidal signs.<sup>1</sup>

All patients did not have any acute or chronic acoustic disorders or any abnormalities. Changes were recorded in the brainstem auditory evoked potentials, where the acoustic nerve was affected up to the acoustic area of the brain. Magnetic resonance imaging of all patients showed multifocal destruction in the white matter with irregular areas of hyperintensity, especially around the ventricles of the brain atrophy in some of them.

The laboratory test electrophoresis IgG 120mg/l (normal value 35mg/l) and Albumin 380mg/l (normal value 200mg/l) in cerebrospinal fluid higher than normal value in multiple sclerosis. The possible