Acute Bacterial Meningitis Among Children <5 Years of Age in Oman: A Retrospective Study During 2000–2005

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Background: During the last two decades, significant changes have taken place in the epidemiology of meningitis, especially due to the global availability and expanding use of Hib vaccines. The introduction of conjugate Hib vaccine in the Expanded Programme of Immunization (EPI) in Oman and recent availability of meningococcal vaccines against serogroups A and C plus the introduction of pneumococcal heptavalent conjugate vaccine are expected to influence the epidemiology of the disease in the country. We conducted this periodic review of acute bacterial meningitis in children less than five years of age in Oman from January 2000 to December 2005 to reflect changes in the epidemiological pattern of these pathogens.

Methods: Retrospective analysis of all cases of acute bacterial meningitis in children less than five years of age reported to the Department of Communicable Diseases Surveillance and Control, Ministry of Health, Oman.

Results: There were 344 cases of meningitis due to suspected bacterial etiologies reported in children less than 5 years of age. Haemophilus influenzae 76 (22%) was the most common pathogen identified, followed by Streptococcus pneumoniae 53 (15%) cases and Neisseria meningitidis 37 (11%) cases respectively. In one hundred seventy four (52%) cases of presumptive bacterial meningitis, the etiologic organism remains unidentified. The peak occurrence of meningitis was in young children less than one year old. The total male to female ratio was 1.4:1 and the case fatality rate (7deaths) was 2%.

Conclusion: With the introduction of Hib vaccine in Oman in October 2001, the absolute number of cases due to Haemophilus influenzae significantly declined over the years. The incidence of meningitis due to other pathogens like S. pneumoniae and N. meningitidis remains steady. There is significant need to improve laboratory methods of bacterial detection and identification, which will help to formulate better antibiotic policies and strengthen control measures through newly introduced vaccines in Oman.

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Bacteriologic Study of Diabetic Foot Ulcer

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Keywords: Diabetic foot; Infection; Bacteriologic; Susceptibility testing

Background: Foot infections are the most common problems in persons with diabetes. These individuals are predisposed to foot infections because of a compromised vascular supply secondary to diabetes. Both aerobic and anaerobic bacteria are responsible for infections, which most of them are resistant to antibiotics.

Patients and Methods: In total 116 hospitalized and outpatients diabetic with foot infections were investigated. Deep tissue biopsies were inoculated into freshly prepared Thioglycollate broth medium. Bacterial agents were identified by conventional bacteriologic methods. Sensitivity tests were performed according to standard disc diffusion method of Kirby & Bauer.

Results: Clinical grading and bacteriologic study of 116 patients with diabetic foot lesions revealed polymicrobial etiology in 63 (54.3%) and single etiology in 45 (38.8%) and 8 negative culture. Aerobic Gram-positive bacteria accounted for 42.25%. Staphylococcus aureus was the most frequent microorganism yielded (26.7%), and Staphylococcus epidermidis was regularly associated with the lesions (14.6%). Gram-negative rods accounted for 52.6%. Escherichia coli was the most prominent gram negative organism (24.1%). No anaerobes was isolated from the ulcers. All the microorganisms isolated showed high resistance to used antibiotics, amongst them, Staphylococcus aureus and Pseudomonas aeruginosa were the most resistant bacteria in present study.

Conclusion: Staphylococcus aureus was the most common cause of infection either alone or with other microorganisms with high resistance to antimicrobial (MRSA & VRSA) but sensitive to ciprofloxacin. E. coli, Staphylococcus epidermidis and Proteus vulgaris were the other common causes of diabetic foot infections in present study. And the rate of antibiotic resistance was 65% among the isolates. Due to polymicrobial infection and antibiotic resistance, surgical intervention aside with ciprofloxacin must be concerned.

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Important Marker of cagI and cagII in Helicobacter pylori Isolated from Dyspeptic Patients in Iran

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Background: The major H pylori disease associated genetic factor is the whole cag pathogenicity island (PAI), including of 30 genes.
cagA and cagE present cagI and cagT introduced cagII part in cagPAI.

In this study we consider to genetic characteristics of the cagI and cagII regions in cagPAI and its significance in the Iranian strains of H. pylori isolated from peptic ulcer (PUD) and non ulcer disease (NUD) patients.

Methods: Clinical isolates of H. pylori were collected from 120 patients with gastric disorders that 80 gastric biopsies were qualified for next steps. These samples were cultured for H. pylori by conventional methods. The genomic DNA was extracted from biopsy samples by QIAGen kit. The PCR was performed for detection of cagA, cagE and cagT in cag PAI.

Results: The positive rates of 80 H. pylori strains, 20 (25%) and 60 (75%) were PUD and NUD patients respectively. In PUD patients with rate of 14 (70%), all of isolates were cagA - positive and distribution of cagE and cagT were 7 (35%) and 5 (25%) in these patients. On the other hand the prevalence of cagA, cagE and cagT in NUD patients were 48 (80%), 21 (35%) and 22 (36%) respectively. Co-existence of cagT/cagA, cagT/cagA and cagA/cagE were 5, 6 and 7 in PUD patients.

Conclusion: The structural variety of the cag PAI might be related to the virulence of H. pylori. Our results showed the prevalence of cagT in PUD patients is less than NUD while, in dyspepsia patients it is more associated with cagA until cagE, it can be an important role of cagA in peptic ulcer disease. Also with attention to cagT as a marker for cagII and cagA and cagE for cagI we can conclude the presence of both parts of cag PAI is not need for producing of ulcer in patients necessarily.

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The Prevalence and Risk Factors Associated with Post-infective Irritable Bowel Syndrome (PI-IBS) Developed in Hospitalized Patients Due to Acute Bacterial Gastroenteritis

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Background and Aim: Previous studies showed the increased prevalence of new onset of irritable bowel syndrome (IBS) after acute gastroenteritis. Associated risk factors with this condition in hospitalized patients were not well defined. We aimed to investigate the prevalence of post-infective IBS (PI-IBS) in hospitalized patients after a bacteriologically confirmed acute bacterial gastroenteritis and associated risk factors with this condition.

Patients and Methods: Medical records of 112 patients were evaluated (mean) 8 months after the acute infection. Presence of IBS and its clinical subtypes according to the Rome II criteria and anxiety score according to Beck’s anxiety scale for each subject, before and after the infection, were evaluated by telephone interview method. Statistical Analysis: Features of groups were compared with each other by t-test and chi-square.

Results: Of the 90 patients, 53% were females. The prevalence of PI-IBS was higher than the previous IBS rate in this group (17.8 vs 7.8%, respectively; p < 0.01). The prevalence of PI-IBS was 14.2% in the men vs. 35.4% in females (p < 0.05). Anxyte has been detected in 37.5% of the subjects with PI-IBS vs. in 9.5% of the subjects without PI-IBS (p < 0.01). Subjects with PI-IBS were more common in younger age (p < 0.05 for each).

Conclusions: Host factors (age, gender and psychological profile) are strong players in the pathogenesis of PI-IBS.

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Ampicillin/Sulbactam for the Treatment of Aspiration Pneumonia and Primary Lung Abscess

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Aspiration pneumonia (AP) and primary lung abscess (PA) are important complications following aspiration of infectious material from the oropharynx or stomach; fatality rates of up to 20% have been reported.1 The principal therapeutic strategy is a prolonged course of antibiotic therapy after exclusion of bronchial obstruction.-

In two prospective studies between 1995 and 2005 a total of 234 patients with these infections were investigated.2,3 Ampicillin/sulbactam (AS) was compared to clindamycin/CL plus a cephalosporin in the first study and to moxifloxacin (MX) in the second study. 166 patients (mean age 60.5 years, 72% males) were treated according to the protocol: AS pat. received AS in an i.v. starting dose of 3.0 g three times daily followed by twice daily 750 mg orally. Leading pathogens collected by bronchoscopy were S. aureus, Klebs.Pneum. and anaerobes. Overall clinical response rate at end of therapy was 69, 8% for AS, 66, 7% for CL and 66, 7% for MX. Mean duration of treatment was between 22±23 days for AS and 26±29 days for MX. All three antibiotic regimes were well tolerated.

Conclusions: Ampicillin/sulbactam proved equally effective and safe as comparators (clindamycin plus cephalosporin or moxifloxacin) in the treatment of aspiration pneumonia and primary lung abscess.

References


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