40.065
Genetic Analysis of the Flagella Gene of Lyme Disease Spirochetes (Borrelia burgdorferi) Isolated from the Offshore Kinmen Island of Taiwan

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The flagella gene of Lyme disease spirochetes (Borrelia burgdorferi) was analyzed for the first time in Taiwan. The genetic identities of these Taiwan isolates (TWKM1-7) were clarified by comparing their sequence similarities and nucleotide distance values of the PCR-amplified flagella genes with three major genospecies of Lyme disease spirochetes for human infection and other zoonotic species of Borrelia spirochetes. Results from 26 isolates indicate that the sequence similarity of these Taiwan isolates revealed a highly homogeneous genotype, ranging from 99.3% to 100%, within the genospecies of B. burgdorferi sensu stricto and was distinguished from other genospecies of Borrelia isolates. Moreover, the nucleotide distance values performed by a pairwise distance calculation (Kimura 2-parameter distance) revealed a highly homogeneity (<0.019) within the same genospecies of these Taiwan isolates and a highly heterogeneity (>0.05) among other genospecies of spirochetes. The phylogenetic analysis also demonstrated that all these Taiwan isolates were closely related to the genospecies of B. burgdorferi sensu stricto within the same phylogen group of B. burgdorferi sensu lato and can be clearly distinguished from other zoonotic species of Borrelia isolates. Thus, we conclude that all these Taiwan isolates should be classified into the genospecies of B. burgdorferi sensu stricto based on the genetic identity of the flagella gene.

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40.066
Isolation, Identification and Growth of Enterobacter sakazakii in Powdered Infant Formula Milk

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Background: Enterobacter sakazakii has been associated with outbreaks of a rare form of infant meningitis, necrotizing enterocolitis, bacteraemia and may cause death. Although the origin of the microorganism has not been established, several cases have been associated with the consumption of contaminated powdered infant formulae. The high mortality rate (40–80%) and severity of infection in immunocompromised infants, neonate of low birth weight and infants of HIV-positive mothers plus the lack of information about this organism led to this study of the prevalence of E. sakazakii in infant formula milk (IFM) available in the Malaysian market and some biological characterization of the organism.

Methods: Isolation and identification of E. sakazakii in IFM was confirmed using a chromogenic media, rapid biochemical tests API20E and Microgen as well as Real-Time PCR. All presumptive E. sakazakii strains were also confirmed using 16S rDNA sequencing. The growth characteristics of three isolated E. sakazakii strains and type strain ATCC 51329 were evaluated at 4, 10, 25, 37, 45 and 50 °C.

Results: The incidence varied from 0-33.3% in 72 samples evaluated from 6 different brands of IFM. E. sakazakii had a doubling time of 3.64 h and 29.92 min at 10 and 25 °C in reconstitute IFM respectively.

Conclusion: The result of these study shows that E. sakazakii is prevalent in dried IFM in the Malaysian market and has a doubling time of 29.92 min in IFM at room temperature (25 °C). This is a cause of concern if IFM is being prepared and kept at that temperature for more than half an hour before feeding as it gives the opportunity for E. sakazakii to multiply in numbers and causing infection to the high risk group, i.e. infants and neonates.

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40.067
Culture Proven Treatment Failures in Patients with Erythema Migrans Treated with Azithromycin, Amoxicillin, Cefuroxime Axetil, or Doxycycline

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Background: Azithromycin has been utilized for treatment of patients with solitary erythema migrans for more than 15 years however the information on its efficacy has been equivocal. The data have been based nearly exclusively on clinical findings; no comparative study on the microbiological assessment of the efficacy has been published.

Methods: Prospectively gained data on adult patients diagnosed with erythema migrans at Lyme borreliosis Outpatient’s Clinic in Ljubljana, Slovenia, from 1997 to 2003 and from 2005 to 2007, formed the basis for this presentation. Patients with Borreliae isolated from the skin lesion prior to treatment (during last years isolation rate was about 50%) with azithromycin (500 mg b.i.d. for the first day, followed by 500 mg o.d. for further 4 days), doxycycline (100 mg b.i.d. for 14 days), amoxicillin (500 mg t.i.d. for 14 days), or cefuroxime axetil (500 mg b.i.d. for 14 days), in whom skin biopsy was repeated at the site of previous procedure 2-3 months later and specimen cultured in the MKP or BSK-II medium for up to 12 weeks for the presence of Borreliae, qualified for this presentation. Persistence of the etiological agent (i.e. finding of Borreliae before and 2-3 months after antibiotic treatment) in skin was interpreted as treatment failure. Findings for individual antibiotics were compared using Yate’s corrected Fisher’s test.

Results: Persistence of Borreliae in normal looking skin at the site of previous erythema migrans was found in 35/1961 (1.8%) patients: in 9/547 (1.6%) treated with azithromycin, in 7/457 (1.5%) treated with doxycycline, in 8/444 (1.8%) patients: in 9/547 (1.6%) treated with azithromycin, in 7/457 (1.5%) treated with amoxicillin, in 8/444 (1.8%) treated with doxycycline, and in 11/513 (2.1%) who were given cefuroxime axetil (unsignificant differences).

Conclusion: Microbiological assessment of the efficacy of treatment of early Lyme borreliosis revealed that treatment failures are rare. No statistically significant differences between azithromycin and comparative drugs were found.

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