Thesis Title : A comparison of methods for the isolation of Campylobacter species from stool specimens

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ABSTRACT

During May - August 1987, a comparison of methods for the isolation of Campylobacter species was determined in 270 stool specimens collected from children under 5 years old with diarrhea attending the Outpatient Department (OPD) and pediatric ward at Bamrasnaradura Infectious Disease Hospital. Eight methods for Campylobacter isolations from a specimen were simultaneously carried out; membrane filter methods (Brucella agar with 5% sheep blood) under GasPak atmosphere incubated at 37°C (1) and 42°C (2), in candle jar at 37°C (3) and 42°C (4), under gas mixture condition (5% O_2, 10% CO_2, 85% N_2) at 37°C (5), conventional method (direct plating method) - Campy-BAP with antibiotics containing 5% human blood (6) and 5% sheep blood (8), and enrichment method using Campy-Thio and cultured on Campy-BAP with 5% human blood (7) under gas

mixture condition at 42°C. Campylobacter spp. were found from 30 (11%) of 270 children by all methods. Methods (1) and (2) resulted in the highest rate (8%; 22/270, and 8%; 21/270) of isolation whereas method (7) (4%; 11/270) were in the lowest. There were no significant differences among methods 1, 2, 4, 5, 6, 6+7, and 8 ($P > 0.05$). The isolation rates of Campylobacter using GasPak atmosphere from method (1) and (2) were significantly higher than those from candle jar at 37°C of method (3) and from method (7) (73%, 70% VS 43%, 37%; $P < 0.05$). There were no significant differences when method 3 was compared with method 4, 5, 6, 7, 6+7, and 8 and when compared method 7 with method 3, 4, 5, and 6 ($P > 0.05$). Diagnosis by direct smear with 1% basic fuchsin was found to be almost as good as culture methods (12%; 31/270 with 11%; 30/270). The rapid test yielded 80% sensitivity, 97% specificity, and 95% efficiency.

The highest isolation rates of Campylobacter spp. (7%; 20/270) were found from children under 1 year old. From 122 Campylobacter isolates, 99 (81%) were C. jejuni, 18 (15%) were atypical Campylobacter, and 5 (4%) were C. coli. Biotype II were the only one biotype found in C. jejuni and C. coli whereas serotype PEN 9 was the commonest serotype in both C. jejuni (16%; 8/50) and C. coli (29%; 2/7). All isolates were susceptible to erythromycin except one isolate of C. jejuni (4%; 1/24) was resistant (MIC $\geq$ 8 µg/ml).