

## Campylobacter diarrhea in children in north of Iran

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**Abstract**—*Campylobacter jejuni* is one of the important diarrheal illness causes that are reported from different parts of the world, in this study we assessed its prevalence in diarrheal samples. Among 455 stool samples have been taken from patients with diarrhea that were referred to health centers and diagnostic laboratories in Gorgan(north of Iran) during 2006-2007, Only 3 (%0.65)cases have been detected as *Campylobacter jejuni* ,by PCR method. There was no any *Campylobacter coli*. This indicates that in our region The *Campylobacter* has very low prevalence in children diarrhea.

north of Iran, south east of Caspian Sea with 350,000 population and Mediterranean climate. Red and white meat including cow, sheep and fish is the main part of their diet and consumption of milk, egg and milk products are common in this area. Contact with pets and domestic animal especially with cat and dog is common in this region and rat could be seen in the sewage disposal system in usual. Regarding above situation we have expected to see high prevalence of *Campylobacter*.

**Key words:** Diarrhea, *Campylobacter*, Epidemiology

## II. MATERIAL AND METHODS

### I. INTRODUCTION

Given the importance of characterization of the local epidemiology of bacterial diarrhea to guide further intervention in health promotion protocols, we have been investigating etiological feature of bacterial diarrhea in Gorgan. It has been shown that about %8.8 of acute diarrhea were caused by *Shigella* in this area [1]. This finding for other bacteria such as *Salmonella* and diarrheagenic *E.coli* was shown %0.5 and %28 respectively (Unpublished data). It was necessary to define other important cause of acute diarrhea as well. *Campylobacter jejuni* is one of the important diarrheal illness causes that are reported from different parts of the world. Infection of more than 2.5 million of people per year is being reported in the united state. It is common cause of bacterial diarrhea in many countries [2]. This bacterium is involved in diarrhea in different age groups but it is more common in children aged less than 5 years. Generally, it is considered to be food born disease and transmitted to human via eating animals and animal products. Gorgan is located in Golestan province in

To examine this suggestion, 455 stool samples have been taken from patients with diarrhea that were referred to health centers and diagnostic laboratories in Gorgan during 2006-2007. Two methods including stool cultures (for 250 samples) and PCR for detection of *Campylobacter* genus and *Campylobacter* species (*C.jejuni* and *C.coli*) have been used to investigate presence of *Campylobacter* in all stool samples. The patients were often in the range of 2-5 years age but the age of patients were variable from less than month to 22 years old (mean 5.07±8). By gender, %55.7 of those was male and %44.3 female. Samples have been taken in one full year that covered 4 seasons. Preston medium (HIMEDIA) with selective antibiotics (Vancomycine, Trimethoprim and Polymyxin) and microaerophilic condition by Gaspac was used for stool culture. After 2-3 days suspicious colonies were assayed microscopically and Oxidase and catalase tests as well as growth in 42°C. For PCR, specific primers of 16s rRNA for genus and hipo and asp primers were used for *Campylobacter* species detection (Table 1). As positive and negative controls, *Campylobacter jejuni* CIP103729 and distilled water were used respectively [3 & 4].

### III. RESULTS

We did not isolate any *Campylobacter* from stool cultures. Only 3 (%0.65) bands have been detected on agarose gels representing expected size of *Campylobacter* genus (840 bp) and *jejuni* species (344 bp).

The three patients age group were belong to >13 years, 2-5 years and <1 years, respectively. All cases had diarrhea during winter times. In all three cases the diarrhea was loose and each in yellow, Green and brown colors. It should be mentioned that two cases of them were women.

There was no any band in equal size of *Campylobacter coli* gene (500 bp). In spite of the relatively distribution of sampling in different age groups and seasons as well as different regions of the city, we believe that our data provide very low prevalence of the *Campylobacter* in our area.

### IV. DISCUSION

In many studies especially in developing countries *Campylobacter* is one of the major etiological agents of diarrhea [5-6], but In spite of our expectation, in this study only three cases (0.6%) of *Campylobacter* were diagnosed in our region.

Big difference in prevalence of *Campylobacter*'s diarrhea between this report and other studies is giving questions that, *Campylobacter* is not important cause of diarrhea in our region? Is that cooking protecting transmission of this bacteria to human and cause diarrhea? These questions could be answered by further studies on the animals and food treatments in this region as well as using new techniques for bacterial detection.

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TABLE I. THE LIST OF PRIMERS WHICH USED FOR *CAMPYLOBACTER* SP. IN DIARRHEAL SAMPLES

<b>Campylobacter (Genes)</b>	<b>Primers</b>	<b>Amplicon size</b>
Universal, 16srDNA	F-5' GGA GGC AGC AGT AGG GAA TA 3' R- 5' TGA CGG GCG GTG AGTACA AG 3'	1062 bp
C.spp(16srDNA)	F -5'GGA GGA TGA CAC TTT TCG GAG CG 3' R -5'TCG CGG TAT TGC GTC TCA TTG TAT ATG C 3'	840 bp
C.jejuni (hipo)	F- 5'GAC TTC GTG CAG ATA TGG ATG CTT 3' R- 5' GCT ATA ACT ATC CGA AGA AGC CAT CA 3'	344 bp

C.coli (asp)	F-5'GGT ATG ATT TCT ACA AAG CGA G 3' R-5'ATA AAA GAC TAT CGT CGC GTG 3'	500 bp
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