Abstract. *Campylobacter* infection of the gastrointestinal tract has been observed as an antecedent illness in some patients with Guillain-Barre syndrome (GBS); these patients have been reported to have poor prognosis. We investigated 29 patients with GBS, admitted to our hospital from January 1996 to December 1999 for recent *Campylobacter* enteritis by culture of their stool specimens. *Campylobacter upsaliensis* and *C. jejuni* were isolated from stools of one patient each with acute motor axonal neuropathy (AMAN) and acute inflammatory demyelinating polyradiculoneuropathy (AIDP) respectively. The patient with *C. upsaliensis* infection was a 7 year-old male child who developed features of AMAN, 7 days after onset of diarrhea. He recovered gradually within 24 days with residual deficit in the form of foot drop. This deficit has persisted for last three and half years. The other patient with *C. jejuni* infection was a 9 year-old boy, who developed AIDP after 9 days of acute diarrhea. This patient recovered completely within 28 days of illness without any deficit. None of the patients had relapse of GBS. The present findings indicate the need of planned systematic studies to explore the role of *C. upsaliensis* and other campylobacters as agents of antecedent diarrhea in patients of GBS with different clinical presentations and prognosis.
20) with GBS admitted to our hospital from January 1996 to December 1999 were cultured for *Campylobacter* species. Different patterns of GBS were diagnosed by electrophysiological and other clinical studies. Routine nerve conduction studies were performed by standard techniques. Intercostal nerve conduction was done by the surface recording over the rectus abdominis muscle (Pradhan and Troly, 1989). Electromyelography was performed by concentric needle electrode.

**Isolation and identification of *Campylobacter* species**

Fecal specimens were plated on selective medium, Campy-BAP (Difco) with antibiotic supplements (Blaser *et al*, 1989). In addition to primary plating on selective medium, stool samples were also cultured on non-selective blood agar medium using filtration method (0.45 µm cellulose acetate filter) (Piersimoni *et al*, 1995). The plates were incubated at 42ºC in candle jar with a MacConkey plate seeded with *Escherichia coli* for better microaerophilic condition as described earlier (Prasad *et al*, 1991). The characteristic colonies were identified by Gram staining, biochemical and antibiotic sensitivity tests (On, 1996; Prasad, 1999).

**RESULTS**

Of 29 patients, 7 (24.1%) had history of diarrhea within 6 weeks preceding illness. *Campylobacter* was recovered from stool of 2 patients; overall isolation from patients with GBS was 6.9% but isolation from patients with history of diarrhea was 28.6%. One strain was recovered only on non-selective medium using filtration technique and this strain was identified as *C. upsaliensis*. The other strain was isolated on both selective and non-selective media and was identified as *C. jejuni*.

Patient 1, a 7-year male child had a history of acute diarrhea for a period of 4 days. Eight days after the onset of diarrhea, he developed sudden weakness in all four limbs, which was more marked distally with no sensory symp-
isolated Campylobacter from 4 (44.4%) of 9 patients with diarrhea preceding GBS as compared to 2 (28.6%) of our 7 patients with antecedent diarrhea. Though majority of our GBS patients were young adults (median age 27 years), both the patients with antecedent Campylobacter infection were children. This may be due to high prevalence of Campylobacter infection in children in developing countries including India. There are reports that majority of pediatric patients with Campylobacter associated GBS require mechanical ventilatory support and recover with severe neurologic deficits (Ho et al, 1997; Cole and Mathew, 1987). The relatively benign course of our two patients with Campylobacter infections is also evident from the borderline normal or only slightly deranged phrenic and intercostal nerve conductions; severe abnormality of these nerves are known to precipitate ventilatory failure (Pradhan, 1990). However, both of our patients recovered without ventilatory support and one patient with AMAN and preceding C. upsaliensis enteritis has a foot drop. So far, two cases of GBS related to C. upsaliensis have been reported in literature; one 64 year old US woman with AMAN improved quickly following plasmapheresis (Ho et al, 1997) and the other, a South African child had less severe form of illness as compared with C. jejuni biotype 2 associated GBS (Lastovica et al, 1997). No nerve conduction study was performed on the African patient; thus the pattern of GBS is not known. In a recent study, majority of GBS and FS patients who had anti-C. upsaliensis antibodies also had anti-C. jejuni antibodies and anti-C. upsaliensis antibodies were absorbed by C. jejuni surface proteins (Koga et al, 1999). Therefore, detection of anti-C. jejuni antibodies as done in most of the recent studies may not always be able to distinguish enteritis caused by different Campylobacter species. Role of C. upsaliensis and other Campylobacter infections as trigger for GBS need further evaluation.

Patient 2 in the present study had AIDP pattern with antecedent C. jejuni and VZV infections. This patient recovered completely within 28 days with no neurological deficit. VZV is also known as trigger of GBS (Hughes and Rees, 1997). Two precipitating antecedent factors, C. jejuni and VZV infections are probably being reported first time in a GBS patient.

From the present study, it is clear that Campylobacter associated GBS exists in this region and perhaps is more common among children. Also, the disease is probably not always that severe as reported from the developed countries. It is known that in developing countries the exposure to Campylobacter infection occurs in early life with often reinfection. Whether pre-existing antibodies have some role to determine the course and severity of disease is not known. Systematic studies are needed worldwide, especially in developing countries to find out the role of whole spectrum of campylobacters in GBS and their effects on clinical course of the disease.

REFERENCES


