

# Intestinal pseudo-obstruction following oral baclofen: An unusual complication

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Received: 06-07-2014

Revised: 26-09-2014

Accepted: 17-12-2014

## ABSTRACT

Baclofen is a gamma-aminobutyric acid B (GABA<sub>B</sub>) agonist used for the management of spasticity associated with spinal cord injury. Oral baclofen might cause constipation, but intestinal pseudo-obstruction is very rare. We report a 50-year-old male with spasticity following cervical discectomy (C3-4) on oral baclofen for 6 months with intestinal pseudo-obstruction. He had undergone open suprapubic cystostomy for traumatic urethral injury, 45 days prior to the presentation and adhesive intestinal obstruction was also considered a possibility. However, there were no air fluid levels on abdominal radiographs and ultrasound abdomen was non-contributory. Withdrawal of baclofen was therapeutic in this patient. This case is being reported to highlight the rare possibility of oral baclofen induced intestinal pseudo-obstruction.

**Key words:** Adynamic obstruction, baclofen, constipation, intestinal pseudo-obstruction, spasticity

## INTRODUCTION

Intestinal obstruction can be a result of mechanical or functional obstruction of the intestines, thereby preventing the normal transit of the products of digestion.<sup>[1]</sup> Intestinal pseudo-obstruction (adynamic), characterized by abdominal pain, nausea, vomiting, constipation, and severe abdominal distension, is a clinical syndrome caused by severe impairment in the ability of the intestines to push the food through,

in the absence of any lesion in the intestinal lumen.<sup>[1-3]</sup> Secondary pseudo-obstruction is more common than the primary and is commonly associated with neuroleptics, opiates, diabetes mellitus, and severe metabolic illnesses.<sup>[1]</sup> Intrathecal baclofen has been reported to cause intestinal pseudo-obstruction and life-threatening constipation.<sup>[4-6]</sup> Though baclofen might sometimes cause constipation, there are only very few reports on intestinal pseudo-obstruction complicating oral baclofen therapy. Hence, this case is being reported for its rarity.

## CASE REPORT

A 50-year-old male, post cervical discectomy (C3-4) for prolapsed intervertebral disc with quadriplegia, neurogenic bladder, and spasticity, was on baclofen at a dose of 50 mg/day for 6 months. He presented to the emergency department with acute onset of bilious projectile vomiting,

Access this article online	
Quick Response Code:	Website: www.jpharmacol.com
	DOI: 10.4103/0976-500X.162010

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abdominal distension, and constipation since 3 days. One and half months back, he had a traumatic urethral injury for which open suprapubic cystostomy was performed. He had no history of other co-morbidities or drug intake other than baclofen. On examination, his vitals were stable but he was dehydrated. The abdomen was distended with diffuse tenderness. There was no guarding or rigidity. There was a tympanitic note on percussing the abdomen. Digital rectal examination revealed firm stools. Plain radiograph of the abdomen revealed dilated large and small bowel loops without any air fluid levels. Ultrasound (USG) abdomen was non-contributory. The serum electrolytes were within normal range. The possibility of adhesive intestinal obstruction was considered and the patient was kept nil per oral with nasogastric aspiration. The abdominal distension gradually decreased with the conservative management. Serial abdominal radiographs revealed decreasing caliber of bowel loops on consecutive days. A diagnosis of pseudo-obstruction was considered secondary to long-term baclofen intake, as he had gradually improved over 1 week without any active intervention except for the discontinuation of baclofen since admission. The patient was able to tolerate oral diet after 7 days of admission with no recurrence of symptoms. Currently, at 1 month of follow-up, he is asymptomatic with no recurrences.

## DISCUSSION

Colonic pseudo-obstruction is characterized by distension of the colon with features of colonic obstruction, in the absence of mechanical obstruction. Primary pseudo-obstruction is rare and is a motility disorder involving the autonomic innervation of the intestinal wall. Secondary pseudo-obstruction is more common and it has been associated with conditions like severe metabolic illness, diabetes mellitus, myxedema, scleroderma, Parkinson's disease, hyperparathyroidism, and drugs like neuroleptics and opiates. Sympathetic overactivity overriding the parasympathetic system has been postulated as a possible mechanism.<sup>[1]</sup>

Baclofen, a derivative of gamma-aminobutyric acid (GABA), is an agonist for the GABA B receptors, and is used to treat spasticity following spinal cord injury, multiple sclerosis, and cerebral palsy.<sup>[7,8]</sup> Constipation is a less serious and an uncommon side-effect of baclofen. Tolerance to baclofen mainly develops after many years to intrathecal route, but this beneficial property can be potentially harmful necessitating baclofen withdrawal in patients developing adynamic intestinal obstruction.<sup>[8]</sup> Intestinal pseudo-obstruction has been reported after intrathecal baclofen, but till date, only a single case has been reported in literature describing adynamic intestinal obstruction caused by therapeutic dose of oral baclofen at 20 mg/day for 2 years in a 75-year-old male.<sup>[9]</sup>

Animal studies have shown that GABA-ergic mechanisms are involved in synaptosomal nitric oxide synthesis resulting in relaxation of rat ileum.<sup>[10]</sup> In human preparations obtained from patients with malignant tumors, baclofen suppressed both amplitude and frequency of spontaneous and pharmacologically induced contractions in the longitudinal muscle of jejunum, eventually causing a complete block at higher concentrations while not affecting spontaneous motility of circular or longitudinal colon muscles. GABAergic neurons, which are predominantly inhibitory interneurons, are distributed throughout the central nervous system and the enteric nervous system in humans.<sup>[11]</sup> Hence, baclofen being a competitive GABA B agonist, affects the gastrointestinal function by acting both peripherally in the intestinal tract by inhibiting the myenteric plexus and centrally on brainstem nuclei which coordinate afferent input from and efferent output to the intestine by crossing the blood-brain barrier.<sup>[9,11]</sup>

In our case, we considered the possibilities of baclofen-induced pseudo-obstruction of the intestine and adhesive intestinal obstruction. Hence, baclofen was discontinued and patient was put on nasogastric decompression. Considering the remote possibility of adhesive obstruction, water-soluble contrast enema, colonoscopy, or neostigmine was not tried. Colonoscopic decompression was planned in case of deterioration, but the patient recovered completely with prompt discontinuation of baclofen, nasogastric decompression, and maintenance of electrolytes. Considering the temporal relationship of the occurrence of symptoms after 6 months of baclofen therapy, improvement after withdrawal of the drug, and presence of pharmacological explanation for the occurrence of obstruction and evidence of similar reports earlier, we considered the possibility of baclofen-induced pseudo-obstruction. On causality assessment, baclofen-induced pseudo-obstruction in our case belongs to the "Probable/Likely" category as per the World Health Organization-Uppsala Monitoring Centre (WHO-UMC) system and to the "Possible" category as per the Naranjo's algorithm with a score of 3.<sup>[12]</sup> Objective evidence in the form of blood levels of baclofen was not available, and re-challenging was not attempted because intestinal pseudo-obstruction could be fatal. The remote possibility of adhesive obstruction is mostly unlikely as the patient recovered with withdrawal of baclofen.

## CONCLUSION

Oral baclofen used for spasticity can cause constipation, but intestinal pseudo-obstruction is a rare possibility and in such cases, prompt discontinuation of the drug can be therapeutic. This rare cause of intestinal pseudo-obstruction needs to be borne in mind to avoid potentially morbid investigations like gastrograffin enema or colonoscopy, which are associated with complications like perforation.

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**How to cite this article:** Karthikeyan VS, Senthilkumaran K, Easwaran B, Rajbhaskar R. Intestinal pseudo-obstruction following oral baclofen: An unusual complication. *J Pharmacol Pharmacother* 2015;6:169-71.  
**Source of Support:** Nil, **Conflict of Interest:** None declared.