

# Improved Bowel Care With a Polyethylene Glycol Bisacodyl Suppository

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**Abstract :** To test its effectiveness for bowel care in myopathy, a bisacodyl suppository based in polyethylene glycol (PEGBS) was compared with a conventional bisacodyl suppository based in hydrogenated vegetable oil (HVOBS). Nineteen patients with upper motor neuron paralysis received 57 HVOBS and 114 PEGBS trials in a crossover design. The average time for complete bowel evacuation was 2.4 (range 1.0 to 4.5) hours with HVOBS and 1.1 (range .03 to 1.8) hours with PEGBS. Three patients later discontinued the PEGBS because of cramps or fecal incontinence. The remaining 16 patients continued to use PEGBS for three years and 15 reported a sustained savings in time. It is concluded that the replacement of HVOBS with PEGBS will reduce bowel care time in myopathy patients by about half. (*J Spinal Cord Med* 1997;20:227-229) **Key words:** spinal cord injury, constipation, large bowel, colon. **INTRODUCTION**

Colonic dysfunction in myopathy patients<sup>1</sup> is manifested by prolonged bowel care time, often more than two hours per session, one of the more time consuming aspects of personal care.<sup>2</sup> Recently, methods of improved bowel care have been reported.<sup>3-5</sup> One of these, the use of a bisacodyl suppository based in polyethylene glycol instead of the usual hydrogenated vegetable oil, reduces the time needed for bowel care.<sup>5</sup> The value of this modified suppository is reexamined in this report.

## METHODS

**Trials.** The effectiveness of the commonly used suppository, bisacodyl diphenyl acetate, 10mg, in a hydrogenated oil (Dulcolax Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CN) was compared with that of the new suppository, containing the same quantity of bisacodyl in a polyethylene glycol base (Magic Bullet, Great Southern Laboratories, Houston, TX.) Hydrogenated vegetable oil-based bisacodyl suppositories (HVOBS) were used for one to two weeks with frequency of two to three times per week in combination with usual laxatives and digital stimulation of the anal ring for each individual.

<sup>1</sup> Spinal Cord Injury Services, Department of Veterans Affairs Medical Center, Brockton, MA. Correspondence: James H. Frisbie, MD 1400 Veterans of Foreign Wars Parkway West Roxbury, MA 02132 Trial medication was furnished by the hospital pharmacy service. Received: October 8, 1996 Accepted: December 20, 1996

The time, to the nearest minute between the insertion of the suppository and the completion of bowel evacuation and cleanup was measured. Polyethylene glycol-based bisacodyl suppositories (PEGBS) were then substituted for HVOBS for two weeks and the times for bowel evacuation again measured. Caregivers were not blinded in the use of the suppositories.

**Subjects.** Nineteen myelopathy patients with upper motor neuron lesions due to spinal cord injury, whose bowel care regimens included the insertion of bisacodyl suppositories and who agreed to participate in the trials with the modified suppository, were the subjects of the trial. The level of paralysis was cervical in 15 and thoracic (T1-7) in four. The grade of paralysis was motor complete in 15. The average age was 64, range 41 to 81, years. The average duration of paralysis was 19, range three to 51 years. Patients were interviewed three years after the trials with PEGBS to determine continued use, their perception of the duration of bowel care and complications. Thus, the initial trials with PEGBS were prospective and follow-up was retrospective.

## RESULTS

There were 57 trials with HVOBS and 114 with PEGBS. When HVOBS were used, nine patients required two suppositories inserted for each bowel care session. When PEGBS were used, the doses were sometimes reduced to prevent complications so that finally 16 patients used one and three used two suppositories for each bowel care session. All patients experienced a shortening of bowel care with PEGBS (See table 1.)

At the three year follow-up, 16 patients continued to use PEGBS. Fifteen patients continued to note a shortening of bowel care time and 13 of these estimated the difference. (see Table 2.)

Table 1. Time required for bowel care using hydrogenated vegetable oil-based (HVOBS) vs polyethylene glycol-based (PEGBS) bisacodyl suppositories by report of the caregiver Initial trials

Suppository Base

The nursing staff reported that three patients had discontinued PEGBS because of sweating, cramping or delaying fecal incontinence with this treatment. Although the documentation of complications was not systematic, another two patients had reported some rectal burning with PEGBS but had not discontinued its use. These patients had also noted burning with HVOBS.

## DISCUSSION

Bisacodyl diphenyl acetate, when applied in a water solution as an enema, can enhance spikes of colonic pressure and induce coordinated peristaltic waves within minutes in neurologically intact subjects.<sup>6</sup> When the drug is delivered by suppository, the onset of action depends upon the solubility of the suppository base in rectal fluid, shown to be much greater for polyethylene glycols than for a variety of oils.<sup>7</sup> Clinically, the onset of bisacodyl activity is greatly enhanced by the substitution of polyethylene glycol for hydrogenated vegetable oil base.

The reduction in bowel care time by half is remarkably similar to previously reported experience with PEGBS.<sup>5</sup> In fact, the simple substitution of one make of suppository for another has reduced bowel care time to durations comparable to those achieved with colostomy (see table 3.) In the three years since its introduction at our medical center, during which the use of PEGBS has become routine, these time savings have been maintained. Relief of the other complications of fecal retention -e.g., soilage, detention, dysreflexia, hemorrhoids<sup>8,9</sup> - was not examined in this study. The cholinergic drug cisapride will reduce large bowel transit time, but its final effect on bowel care time has not been reported.<sup>4</sup> Pulsed irrigation has been used to clear fecal impaction, but its practicality for long term management has yet to be assessed.<sup>3</sup> A comparison of all of these newer techniques for bowel care time, side effects and relief of complications would be of interest. It is concluded that the use of polyethylene glycol based bisacodyl suppositories reduces bowel care time by about 50 percent and can improve quality of life for the myelopathy patient.

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