Evacuation effect of bifidus bacillus BB536 in patients with intractable neuromuscular disease

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Abstract

We examined whether improvement of constipation occurred following the use of bifidus bacillus BB536 for patients with neuromuscular disorders and constipation. Bifidus bacillus BB536 was given to 20 patients after a meal, and evacuation state was evaluated. No difference was found in mean stool frequency or mean intestinal peristalsis sound before and after bifidus bacillus BB536 administration. The number of enemas decreased in 11 patients, did not change in six patients, and increased in three patients. Intestinal peristalsis sound was attenuated in five patients, unchanged in four patients, and enhanced in 11 patients. The stool frequency decreased in ten patients, was unchanged in three patients, and increased in seven patients. These results suggest that bifidus bacillus BB536 has some effect on improving evacuation.

Key Words: Constipation, Spontaneous evacuation, Intractable neuromuscular disease

Introduction

Elderly patients may become constipated by reduced independence in performing the activities of everyday life [1,2]. Bladder rectal disorder develops by aggravation of conditions in intractable neuromuscular diseases and when constipation develops in autonomic nervous system disorders, communication disorders, and functional motility disorders, nursing intervention with regard to bowel control is required. In Tokushima Hospital, many patients with neuromuscular disorders are hospitalized for a long period. Most of these patients are elderly and, although a mild cathartic and medicine for intestinal disorders, as well as an enema, are given as treatment, evacuation is often not controlled sufficiently. Preliminary research on constipation includes the examination of the effect of pot massage and aroma massage and improvement of the bowel internal environment [1,2]. In a previous study, improvement of the bowel internal environment was achieved using bifidus bacillus BB536. However, this improvement in bowel internal environment is not found in patients with intractable neuromuscular diseases. We examined whether improvement in constipation status occurred following the use of bifidus bacillus BB536 for patients with neuromuscular disorders and constipation.

Subjects and Methods

The subjects consisted of 20 patients (ten men and ten women) receiving tube feeding and regular enemas. All had intractable neuromuscular disease. They agreed to participate in this study. As a medication method, 2 g of bifidus bacillus BB536 was dissolved in 50 ml of plain hot water, which was administered at supper once a day. Clinical evaluations were made two weeks before

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and after the use of bifidus bacillus and continued for two weeks. The evacuation state was evaluated with the following indexes: (1) stool frequency, (2) quantity of stool, (3) shape of stool, (4) colour of stool, (5) use of enema, and (6) intestinal peristalsis sound. The shape of the stool was evaluated using the Bristol Stool Form Scale. The intestinal peristalsis sound was detected at an abdominal wall part on the left at a distance of three finger widths from the navel. Statistical analysis was performed using Excel for Windows. After obtaining approval from the Tokushima Hospital Ethics Committee following their ethical consideration, we gave an oral explanation about a study summary provided in a document, and written agreement was obtained.

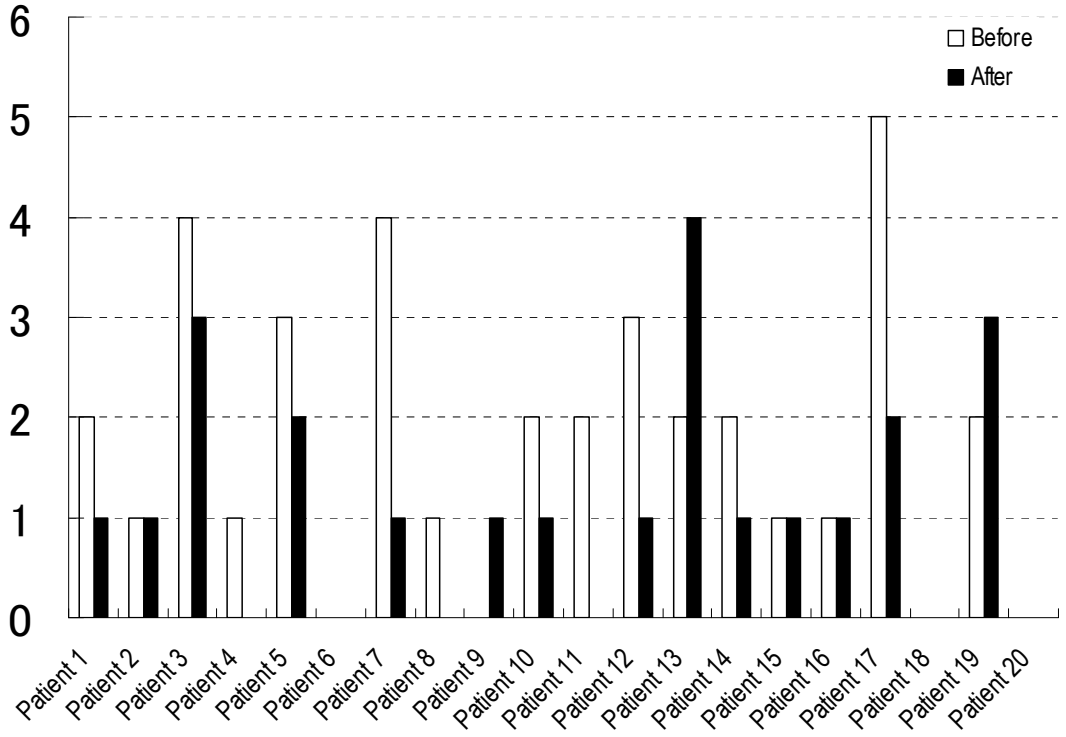

Figure 1. The mean number of enemas with regard to the administration of bifidus bacillus BB536.

Results

The average age was 67.2 years old among all the patients, 64.8 years old in men, and 69.5 years old in women. With regard to the ADL of the patients, all required full-scale assistance, and mutual understanding was possible for seven of them. With regard to evacuation status, 18 of the patients used laxatives. Their stools were moderately soft and mushy. The Bristol Service Property Scale scores were 5-6. All the subjects received their diet by tube feeding. No difference was found in mean stool frequency or mean intestinal peristalsis sound before and after bifidus bacillus BB536 administration. The number of enemas decreased in 11 patients, was unchanged in six patients, and increased in three patients, as shown in Figure 1. Intestinal peristalsis sound was attenuated in five patients, unchanged in four patients, and enhanced in 11 patients, as shown in Figure 2. The stool frequency decreased in ten patients, was unchanged in three patients, and increased in seven patients, as shown in Figure 3.

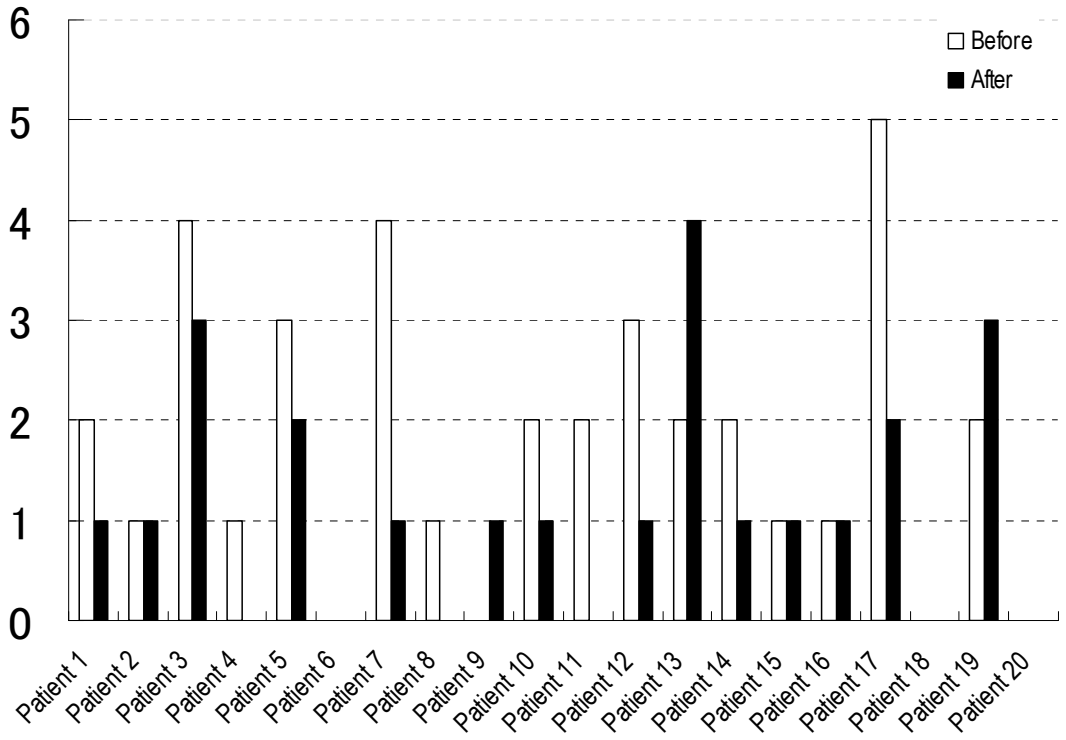

Figure 2. The mean number of enemas with regard to the administration of bifidus bacillus BB536

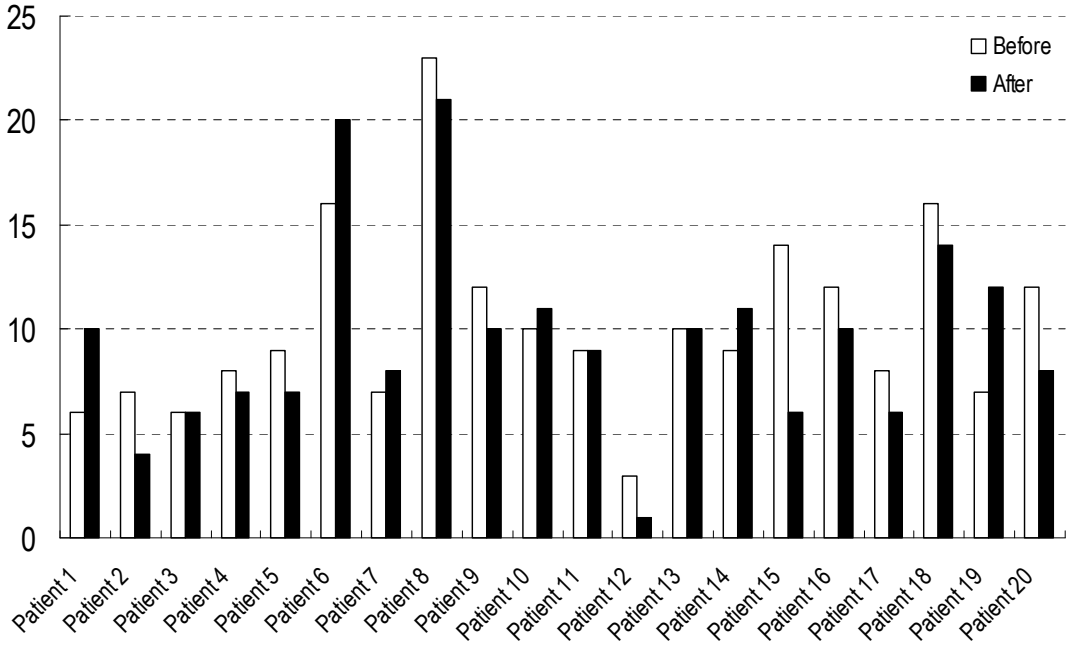

Figure 3. Mean stool frequency with regard to the administration of bifidus bacillus BB536

Discussion

We examined the effect of bifidus bacillus BB536 on evacuation in this study. No difference was seen in overall mean stool frequency, mean intestinal peristalsis sound, or quantity of

evacuation. However, six subjects out of 20 required a smaller number of enemas, and 11 exhibited increased intestinal peristalsis sound. Furthermore, for seven subjects, the number of spontaneous evacuations increased. Patients with nerve / muscular disease are thought to exhibit rectal constipation caused by diminished and imperfect relaxation of and abdominal pressure on the anal sphincter, as well as atonic constipation in the small intestine and colic hypokinesia. Reduction of imperfect relaxation of and abdominal pressure on the anal sphincter may be associated with improvement of mean stool frequency and mean number of enemas required. However, the increases in intestinal peristalsis sound and stool frequency may suggest improvement of the small intestine and colic exercise. In other words, bifidus bacillus BB536 may have some effects on improving evacuation. In healthy subjects, the intake of bifidus bacillus seems to relieve constipation by promoting peristalsis through enteral acidisation [1,2]. There have been 15 reports of side effects attributable to magnesium oxide, which is a mild cathartic, and two of these reported cases resulted in fatalities during the period from April, 2005, until August, 2008, according to the Ministry of Health, Labour, and Welfare. Owing to the fact that a supplement that includes bifidus bacillus BB536 is safe, it is considered that the observed effect is significant for future treatment methods. More detailed testing of the effects will be carried out in future.

References

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