Effectiveness of Acupuncture for Management in a Hospitalized Geriatric Patient with Constipation

Newanda Johni Muchtar, MD, Dwi Rachma Helianthi, MD, and Irma Nareswari, MD

ABSTRACT

Background: Constipation is a gastrointestinal problem commonly found in clinical practice. The prevalence increases with age. Chronic constipation is associated with a decrease in patients' quality of life (QoL). Existing treatments cause side-effects and the positives effects are only short-term. Recently, acupuncture has been widely used to treat geriatric problems, and one of the problems being addressed is constipation.

Case: An 85-year-old female, with hip fractures, had episodes of being unable to defecate and had stomach pain that was persistent due to this constipation. She was admitted to the hospital for her fractures, where manual acupuncture was used to treat her constipation.

Results: The therapy was effective for relieving the patient's stomach pain and constipation, and increased the patient's appetite as well as improving her QoL.

Conclusions: Stomach pain in geriatric patients with constipation can lead to difficulty in sleeping, loss of appetite, and persistent pain in the stomach. Constipation can be assessed by using posterior anterior and oblique views of the abdominal radiographic projection. Numerous modalities, including pharmacologic therapy (sodium lauryl sulfoacetate enema and lactulose syrup), have been used to treat constipation-related pain. Recently, acupuncture has also been used to treat stomach pain in geriatric patients with constipation. Acupuncture was effective for relieving the current patient's pain and constipation and also improved her QoL.

Keywords: acupuncture, geriatric, pain, stomach, constipation, elderly

INTRODUCTION

CONSTIPATION IS ONE of the most common digestive complaints encountered in clinical practice. The prevalence of constipation increases with age, with the greatest prevalence being at age 60 and older.^{1,2} Laxatives are used in 50%–74% of residents in nursing homes.^{3,4}

Constipation does not threaten the lives of patients, but it disrupts their quality of life (QoL), making them feel uncomfortable and increasing their morbidity, doctor visits, and hospital-based treatments. Nearly 85% of doctors prescribe laxatives to address constipation.⁵

Chronic constipation is a symptom characterized by rare bowel movements, difficulties with defecation, or both. Difficulties with defecation include straining, a feeling of

incomplete defecation, hard or difficult-to-pass stools, prolonged defecation times, and the need for digital evacuation maneuvers in order to defecate. Constipation is considered chronic if it has lasted for 12 months or more.^{1,6}

In elderly people, there are changes that cause constipation. These include:¹

- Reduction in the number of neurons in the myenteric plexus
- Disorders of direct stimulation that cause myenteric dysfunction
- Increase in collagen build-up in the left colon causing colonic dysfunction
- Reduction of inhibitory nerves in the circular muscle of the colon causing reduced segmental motor coordination

- Increase in binding of plasma endorphin to intestinal receptors (in patients older than 60)
- Reduction in contractility of the muscles; pressure reduction for straining and loss of elasticity of the rectal wall; and increased thickness of the internal anal sphincter with aging.

The initial treatment of constipation is changing foods and behaviors, and reducing any drugs that cause constipation. Patients are advised to increase fiber intake gradually and to defecate regularly and exercise. The next step is use of osmotic laxatives (polyethylene glycol and lactulose) and laxative stimulation (enemas and prokinetic drugs).^{3,7,8}

Measurement scales often used to monitor symptoms of constipation include: Bristol Stool Chart scores; spontaneous bowel movements (SBMs); Cleveland Clinical Score (CCS); Patient Assessment of Constipation–Quality of Life (PAC-QoL); and Constipation Assessment Scale.

This report presents a case of a hospitalized geriatric patient with constipation and decreased appetite. The treatment used manual acupuncture with a very minimal point, so that the patient would feel comfortable.

CASE

An 85-year-old female was referred by the department of internal medicine, of Dr. Cipto Mangunkusumo Hospital—in Central Jakarta, DKI Jakarta, Indonesia—to the hospital's medical acupuncture department due to not being able to defecate at all since 2 weeks before hospitalization. This was accompanied by pain in her entire stomach, which was constant. For 1 month, this patient could not defecate at all. Previously, she had often strained and spent ~30 minutes in the toilet to defecate. She often had to scrape her rectum

before defecation. Often there, was an incomplete sensation of bowel movements. She had changed her diet to include high-fiber foods, such as papaya and vegetables, and drank a lot of water. However, she still could not defecate. She had no complaints of nausea, vomiting, coughing, shortness of breath, or chest pain.

This patient had fallen out of her bed ~3 weeks prior to being admitted to the hospital. She was unable to stand after her fall. After that, she could not stand at all and was unable to leave her bed; thus, she had just remained in bed and was unable to go to the bathroom.

This patient was subsequently brought to the emergency room, with complaints of not being able to defecate, pain throughout her stomach, and a “broken left leg.” On physical examination, her abdomen was noted to be supple. She rated her abdominal pain as 4 on a visual analogue scale (VAS). She also complained that this persistent pain compromised the quality of her sleep and that she felt the pain was throughout the day.

An X-ray was taken, and this showed a complete left-hip fracture with a distal fracture to the superolateral fragment of the hip. Minimal callus formation was noted around the fracture line, and osteopenia was present. Other physical examinations did not reveal any other abnormalities. She had no history of hypertension or known drug allergies, and she did not use tobacco, alcohol, or illicit drugs.

Her Bristol Stool Chart was 0, her Cleveland Clinic Score was 22, her PAC-QoL was 67, and her Constipation Assessment Scale was 13.

Patients generally feel physically uncomfortable, eat less, and feel disturbed by constipation. Yet, there are no signs of danger in these patients. In the current patient, there were no bloody bowel movements, no family history of colon cancer, and no irritable bowel syndrome. Before she became bedridden and constipated, this patient rarely exercised, but

FIG. 1. Two abdominal radiographic projections.

FIG. 2. Locations of the ST 25, ST 36, and ST 37 acupoints in a 85-year-old female with pain in her stomach caused by constipation.⁸

every day, she actively participated in recitations and in farming. She had no history of bloody stools, bloating, changes in frequency, and changes in the shape of her bowel movements. She did have decreased appetite, but no nausea and vomiting. She ate 2 spoons of food three times per day, accompanied by 2 pieces of papaya, and used a nasogastric tube to eat. To urinate, this patient used a catheter. Three-position abdominal radiographic projections were promptly taken. Figure 1 shows 2 X-rays. She had prominent fecal material and no visible ileus or pneumoperitoneum.

Previously, this patient had been given a 10-mg bisacodyl suppository, 60 mL of 15-mL lactulose syrup three times per day, and after that, a 110-mL emulsion of 15-mL laxadine three times per day. However, still she could not defecate at all. Current treatment included a 100-mg pronalges suppository, twice daily, and manual acupuncture was also administered.

RESULTS

Acupuncture was performed at the bilateral ST 25 (*Tianshu*), ST 36 (*Zusanli*), and ST 37 (*Shangjuxu*) acupoints, using 25×0.25-mm, stainless-steel, filiform disposable needles that were retained for 30 minutes. Figure 2 depicts the locations of these 3 acupoints.⁹ At the end of this first session, this patient reported immediate pain relief (i.e., her VAS was 0). This pain relief persisted until after the session, and she was scheduled for therapy three times per week. During the course of therapy, the patient did not experience pain. On the second day, she was able to defecate. By the second session, her pain was 1 (on the VAS), and,

after acupuncture, she reported immediate pain relief. Furthermore, her sleep quality was no longer compromised. By the third session, her pain had completely resolved. In total, the patient underwent 5 sessions of therapy and was very satisfied with the results. She was discharged after 18 days of hospitalization. Table 1 shows how each session affected this patient.

TABLE 1. EVALUATION

Visit #	Signs and symptoms assessments
1	Bristol Stool Chart: 0 Cleveland Clinical Score: 22 PAC-QoL: 67 Constipation Assessment Scale: 13 VAS: 4; after acupuncture: VAS: 1
2	Bristol Stool Chart: 1. Cleveland Clinical Score: 13 VAS:1; after acupuncture VAS: 0
3	Bristol Stool Chart: 4. Cleveland Clinical Score: 2 VAS: 0; after acupuncture: VAS: 0
4	Bristol Stool Chart: 4 Cleveland Clinical Score: 2 VAS: 0
5	Bristol Stool Chart: 4 Cleveland Clinical Score: 2 PAC-QoL: 0 Constipation Assessment Scale: 0 VAS: 0

PAC-QoL, Patient Assessment of Constipation–Quality of Life; VAS, visual analogue scale.

DISCUSSION

This is a report of the use of acupuncture for the treatment of a hospitalized geriatric patient with constipation. The 85-year-old woman reported that she had not been able to defecate for 2 weeks since she had sustained a femoral fracture. Three-position abdominal radiographs showed prominent fecal material, but without visible ileus nor any pneumoperitoneum. Factors causing constipation in this patient were her advanced age and her hip fractures.

The acupoints used to treat this patient, ST 25, ST 36, and ST 37, were selected according to evidence-based medicine. ST 25 has been proven to increase intestinal motility, smooth-muscle thickness, and numbers of interstitial cells of Cajal (ICC); ST 37 can increase intestinal motility and affect rectal motility; and ST 36 can improve ICC and gastrointestinal (GI) motility.¹⁰

Activation of the A δ and C nerves can modulate GI motility. ST 36 and ST 37 can stimulate parasympathetic nerves.¹¹ Each parasympathetic nerve has a cholinergic component that causes release of acetylcholine. Acetylcholine activates smooth muscle through muscarinic receptors, both directly and indirectly, to cause smooth-muscle contractions later. Muscarinic receptors 2 and 3 have an important role in jejunal motility.¹²

ST 36 stimulates motility through the vagal pathway, where there is an increase in *c-Fos* expression in the solitary tract nucleus and the dorsal motor vagus nucleus. Acupuncture on ST 36 stimulates colonic motility, especially the distal colon, by activating the Barrington nucleus in the pons and also the pelvic peripheral nerves.¹³

Patients with constipation have low amounts of motilin. Acupuncture at ST 37 and ST 36 increases motilin.¹⁴ Acupuncture on ST 37 affects rectal motility and this point's effects can occur 1 hour after needling.¹⁵ Acupuncture at ST 25 increases the thickness of the colonic smooth muscle.

Constipation can cause stress and an increase in corticotropin-releasing hormone (CRH), which can interfere with movement of the colon. Acupuncture reduces stress through the hypothalamus–pituitary–adrenal axis.¹⁴

The acupuncture method used was manual acupuncture. Existing studies indicate that manual acupuncture is effective for reducing constipation symptoms. Deep needling was performed in this patient. Deep needling stimulates the peritoneum and intestine directly and increases colonic motility.¹⁵

The patient is currently defecating routinely once per day with a Bristol Stool Chart index of 4. She no longer uses a laxative, can defecate rapidly, and uses less force in straining. She has expressed that her QoL is improved. Research shows that ST 25 increases the frequency of defecation and that this effect can last 1 month after treatment.¹⁶ The effectiveness of acupuncture for addressing functional chronic constipation can reach 94.4%.¹⁷

CONCLUSIONS

Acupuncture treatment relieved this patients' constipation, and this improvement in her condition was reflected by decreases on the VAS, CCS, PAC-QOL score, and Constipation Assessment Scale, and by an increases on the Bristol Stool Chart, in appetite, and in quality of sleep.

Patients with higher standard pain scale scores and progressed illness are more likely to attain critical pain diminishment.¹⁸ The progress in this patient's QoL was really connected with the decrease of her pain. Using acupuncture in this case was able to reduce this patient's pain intensity in a very short time. More studies are required to affirm pain-reaction factors and set-up strength, and to create a better personal connection to acupuncture for such patients.

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REFERENCES

1. Orozco JFG, Orenstein AEF, Sterler SM, Stoa JM. Chronic constipation in the elderly. *Am J Gastroenterol*. 2012;107:18–25.
2. Costilla VC, Orenstein AEF. Constipation in adults: Diagnosis and management. *Curr Treat Options Gastroenterol*. 2014;12:310–321.
3. Bosshard W, Dreher R, Fran J. The treatment of chronic constipation in elderly people: An update. *Drugs Aging*. 2004; 21(14):911–930.
4. Blekken LE, Nakrem S, Vinsnes AG, et al. Constipation and laxative use among nursing home patients: Prevalence and associations derived from the Residents Assessment Instrument for Long-Term Care Facilities (interRAI LTCF). *Gastroenterol Res Pract*. 2016;2016:1215746.
5. Portalatin M, Winstead, N. Medical management of constipation. *Clin Colon Rectal Surg*. 2012;25(01):012–019.
6. Simadibrata M, Makmun D, Abdullah M, Syam AF, Fauzi A; National Consensus in the Management of Indonesian Constipation in the Indonesian Gastroenterology Association. *Indonesian National Consensus*. Jakarta: Indonesian Gastroenterology Society; 2010.
7. Grundy J, Husbands E. Clinical Care Guidelines: Constipation Guidelines. Worcester, UK: St Richard's Hospice; 2010.
8. Leung L, Riutta T, Kotecha J, Rosser W. Chronic constipation: An evidence-based review. *J Am Board Fam Med*. 2011; 24(4):436–451.
9. Lembo A, Camilleri M. Chronic constipation. *N Engl J Med*. 2003;349(14):1360–1368.

10. Wang X, Yin J. Complementary and alternative therapies for chronic constipation. *Evid Based Complement Alternat Med.* 2015;2015:396396.
11. Liu CH, Lin YW, Hsu HC, Liu HJ, Lin WJ, Hsieh CL. Electroacupuncture at ST 36–ST 37 and at ear ameliorates hippocampal mossy fiber sprouting in kainic acid–induced epileptic seizure rats. *BioMed Res Int.* 2014;2014:756019.
12. Qin QG, Gao XY, Liu K, et al. Acupuncture at heterotopic acupoints enhances jejunal motility in constipated and diarrheic rats. *World J Gastroenterol.* 2014;20(48):18271–18283.
13. Takahashi T. Acupuncture for functional gastrointestinal disorders. *J Gastroenterol.* 2006;41(5):408–417.
14. Wang SJ, Zhang JJ, Yang HY, Wang F, Li ST. Acupoint specificity on acupuncture regulation of hypothalamic–pituitary–adrenal cortex axis function. *BMC Complement Altern Med.* 2015;15:87.
15. Song J, Yin J, Sallam HS, Bai T, Chen Y, Chen JD. Electroacupuncture improves burn-induced impairment in gastric motility mediated via the vagal mechanism in rats. *Neurogastroenterol Motil.* 2013;25(10):807–e635.
16. Wang CW, He HB, Li N, Wen Q, Liu ZS. Observation on therapeutic effect of electroacupuncture at *Tianshu* (ST 25) with deep needling technique on functional constipation [in Chinese]. *Zhongguo Zhen Jiu.* 2010;30(9):705–708.
17. Lee HY, Kwon OJ, Kim JE, et al.. Efficacy and safety of acupuncture for functional constipation: A randomised, sham-controlled pilot trial. *BMC Complement Altern Med.* 2018; 18(1):186.
18. Fillingim RB, Loeser JD, Baron R, Edwards RR. Assessment of chronic pain: Domains, methods, and mechanisms. *J Pain.* 2016;17(9[suppl]):T10–T20.

Address correspondence to:
 Newanda Johni Muchtar, MD
 Department of Medical Acupuncture
 Faculty of Medicine
 University of Indonesia
 Jakarta, Daerah Istimewa Jakarta 10430
 Indonesia
 E-mail: newanda1112@gmail.com