Acupuncture for symptomatic relief of gastroparesis in a diabetic haemodialysis patient

SUMMARY
In this report, we present the case of a diabetic haemodialysis patient with refractory gastroparesis treated with 16 sessions of acupuncture through 8 weeks as an adjunct to conventional drug treatment including prokinetics and antiemetics which remained the same during the treatment course. After the treatment, the total Gastroparesis Cardinal Symptom Index (GCSI) score (range 0–5) was reduced from
A 51-year-old man was referred to the acupuncture research centre with frequent nausea, vomiting and lack of appetite. His medical history showed that he had been diagnosed with type II diabetes and hypertension 19 and 10 years ago, respectively. He had been engaged in regular haemodialysis as a form of renal replacement therapy at a local haemodialysis centre for 9 months. His gastric symptoms initially started 5 months after haemodialysis; thus, prokinetics (dopamine D2-receptor antagonists, including domperidone 10 mg three times daily and metoclopramide 5 mg three times daily) and antiemetics (histamine H1-receptor antagonists, including dimenhydrinate 50 mg three times daily) were prescribed by the doctor in the haemodialysis centre. However, these did not provide sufficient symptom relief, especially for the postprandial exacerbation of nausea and vomiting.

Written informed consent was obtained from the patient to participate in acupuncture treatment. Initial blood tests and medical records from 3 months before acupuncture treatment found low haemoglobin levels (9.2–10.7 g/dl), normal parathyroid hormone levels (58.8–78.3 pg/ml), normal serum albumin levels (4.1–4.7 g/dl) and modestly controlled diabetes (HbA1c 7.3–7.5 %). The GCSI score, which rates symptoms on a scale from 0 to 5, with higher scores reflecting greater symptom severity, was used to measure the patient’s subjective symptoms. The initial scores were 4, 2, and 2.6 for the nausea/vomiting, postprandial fullness/early satiety, bloating subscale scores and the total GCSI score, respectively. Gastric scintigraphy with a solid meal showed 185 min of half gastric emptying time at a pretreatment assessment. Sixteen sessions of individualised manual acupuncture treatment were provided twice a week for eight consecutive weeks by a qualified oriental medicine doctor with 6 years of clinical experience. Acupuncture was conducted for 30–45 min, with de qi sensation through use of 0.20 mm×40 mm sterile, single-use stainless needles inserted to a depth of 1–3 cm and manually stimulated. The most frequently used acupuncture points were PC6, ST36, SP9, ST40, SP4, LI4 and CV12. The patient used prokinetics throughout acupuncture treatment, with no dosage change from baseline, with the exception of the week in which scintigraphy was conducted.

Post-treatment evaluation scores were 0.6, 0.5, 0.5 and 0.5 for the nausea/vomiting, postprandial fullness/early satiety and bloating subscale scores and the total GCSI score, respectively. Follow-up scintigraphy showed 93 min of half gastric emptying time, a 31.3 % reduction in baseline value. The patient reported decreased symptoms (ie, no vomiting, occasional mild nausea and increased appetite). After the 16 sessions of acupuncture treatment, the patient was admitted to a tertiary hospital owing to haematochezia, and colon cancer and a polyp were found and removed by colonoscopy; this finding seemed to be unrelated to the acupuncture procedure. A 4-month follow-up after treatment showed complete reduction in both the total and subscale scores of the GCSI (see figure 1). A follow-up scintigraphy scan was not performed.

**DISCUSSION**

Gastroparesis is a syndrome characterised by delayed gastric emptying in the absence of mechanical obstruction of the stomach. The symptoms consist of postprandial fullness (early satiety), nausea, vomiting and bloating, which may negatively influence nutritional status and decrease quality of life among patients with symptoms. In diabetic dialysis patients, poor food intake and unpredictable nutrient absorption might be a substantial obstacle for optimal disease management. Pharmacological interventions, including prokinetic and antiemetic drugs, might produce less than satisfactory results, and non-pharmacological interventions, including endoscopic injection of botulinum toxin, gastric electrical stimulation and gastric surgery, have not been conclusively proved to be effective and safe. In some patients undergoing dialysis, current conventional treatment might not be an acceptable or realistic option because of their altered pharmacokinetics and higher risk of mortality in comparison with the non-dialysis population, thus presenting a possible contraindication for pharmacological or invasive non-pharmacological treatments.

In this case, the cardinal symptoms of the patient responded poorly to the prokinetic...
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and antiemetic drugs. After 16 sessions of acupuncture as an adjunctive treatment, the patient’s subjective symptoms were significantly reduced and the gastric emptying time, as measured by solid meal gastric scintigraphy, showed a substantial reduction from the pretreatment evaluation. Obviously, we cannot exclude the possibility of a placebo effect through one observational case report. However, the feasibility of acupuncture treatment as an adjunct for intractable gastroparesis in diabetic dialysis patients with poor response to conventional pharmacological or invasive non-pharmacological treatments or a preference for alternative treatments is worth exploring.

Little is known about the exact mechanism by which acupuncture enhances gastric motility and improves dyspeptic symptoms. One possible explanation may be related to the regulative effects of acupuncture on autonomic nerve function as related to gastric motility.\(^5\)

Changes of gastric hormones after electroacupuncture were also tested in patients with diabetic gastroparesis, although there was no significant correlation with clinical improvements.\(^6\)

While there is substantial literature reporting the mixed results due to acupuncture, the antiemetic effects of acupoint PC6 stimulation are well-established. Ezzo et al suggested that future research might be conducted for patients with refractory symptoms and for testing the combined use of PC6 with other acupoints or with conventional medication.\(^7\)

In light of this suggestion, providing adjunctive acupuncture treatment for refractory symptoms of gastroparesis in haemodialysis patients may be feasible and is a worthwhile subject of further research.

CONCLUSION

In this case, 16 sessions of adjunctive acupuncture treatment relieved refractory symptoms of gastroparesis in a diabetic haemodialysis patient. Future controlled trials are justified to evaluate the feasibility and benefit of acupuncture in these patients.

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