INTRODUCTION

A.T. Still, MD, DO, the founder of osteopathic medicine, used OMT on all patients that he saw, regardless of their complaint. Recent studies have shown that OMT can affect the autonomic nervous system (ANS) as measured by heart rate (HR) variability. 1 Such findings are consistent with the principles of somatovisceral effects of OMT, which are also theorized to affect gastrointestinal (GI) function.

The peristaltic activity of the gastrointestinal system is primarily governed through the autonomic nervous system. A complete peristaltic contraction through the GI tract is known as 1 cycle. Normal human gut contractions have been quantified at approximately 2.5-3.75 cycles per minute (CPM) and this can be measured by electrogastrography (EGG). 2 Specifically, EGG is a non-invasive technique for recording gastric myoelectrical activity, by measuring electrical signals generated from nerve plexus embedded in the walls of the GI tract. 3 The EGG measures the surface electrical change created by the electromechanical effects of peristalsis and thus the EGG signal can assess changes in autonomic control of GI motility.

This study was designed to use EGG to evaluate the effects of OMT on GI motility before, during and after an OMT protocol versus a time control period.

METHODS

Thirty-five subjects enrolled in the study. Data in 10 subjects were excluded due to equipment malfunction, and data in another 10 subjects were excluded due to motion artifact. Thus, data from 15 subjects were used in the analyses. Subjects were divided into two groups: Those receiving OMT (n=6), and an additional time control group (n=9). EGG and heart rate data were obtained during a 15 min baseline period prior to a set of OMT treatments (or equivalent time control) and for 15 min after the OMT or time control period. All data are presented as the pre-post change in frequency power. Figure 2 illustrates the lead placement for the EGG measurement. 4

RESULTS

No group differences were observed for systolic blood pressure (p=0.14), diastolic blood pressure (p=0.36), heart rate (p=0.56), or respiratory rate (p=0.59).

The EGG and heart rate variability data were analyzed with fast Fourier transformation power spectral analyses and several power spectral indices were determined before and after the OMT period (or time control period).

ACKNOWLEDGMENTS

Our preliminary results demonstrate that osteopathic manipulative treatment has a significant effect on the 2-4 CPM frequency of the EGG signal. Importantly, this signal is known to increase with digestion and is thought to be importantly influenced by vagal nerve activity. Thus, these data suggest that OMT directed at the gastrointestinal tract may impart effects on gastric motility that are mediated by the vagus nerve. Furthermore, these OMT treatments did not affect vagal or sympathetic neural control of heart rate as shown by no effect on HRV.

These findings are the first to demonstrate these effects of OMT related to the GI function, and may represent a methodology for assessing OMT effects on GI function.

CONCLUSIONS

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REFERENCE