The Effect of Acu-TENS Therapy on Reducing Dyspnea in Patients with Chronic Obstructive Pulmonary Disease (COPD)

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Introduction
Acu-TENS therapy with treatment duration of 45 minutes in previous studies was shown to be effective in reducing dyspnea in patients with COPD. However, in Hong Kong, it is difficult to deliver such long treatment duration for patients in acute wards due to busy environment. Therefore, it is worth to investigate whether shorter treatment duration, 20-minute intervention, will produce similar effect.

Objectives
This study investigated the effect of Acu-TENS therapy on the level of dyspnea within 20 and 45 minutes treatment duration to patients with COPD with acute exacerbation (COPDAE).

Methodology
Patients with COPDAE received a single session of Acu-TENS therapy over the acupoint Ex-B1 (Ding Chuan) bilaterally in the acute medical ward setting. The level of dyspnea as measured by a 10-point visual analogue scale (VAS) before therapy, at 20-minute and at the end (45-minute) of the therapy were recorded. The data collected was analyzed by the statistical test of one-way repeated measures ANOVA using SPSS 11.0 software.

Result
Results: From June to December 2014, thirty male patients with COPDAE, with mean age of 72.6±7.2 years of age, were recruited in the study. Among the subjects, 3.3%
were of GOLD stage I, 13.3% of GOLD stage II, 46.7% of GOLD stage III and 36.7% of GOLD stage IV. There were significant improvements in the level of dyspnea at 20-minute (3.1±1.9)(p<0.01) and 45-minute (2.5±2.1)(p<0.01) as compared to that before the therapy (5.2±1.9). Also there was a significant reduction in the level of dyspnea in 45-minute (2.5±2.1) as compared with 20-minute therapy (3.1±1.9)(p<0.01). However the MRC Clinical Trials Unit and the Cicely Saunders Foundation suggested a change of 10% (1cm) in the VAS score to be clinically significant (Booth 2006). Therefore, the statistical significant reduction in the level of dyspnea for the 45-minute intervention as compared with the 20-minute intervention was considered to be clinically insignificant. Conclusions: Both Acu-TENS therapy with 20 minutes and 45 minutes of treatment duration were found to be effective in reducing dyspnea. However, a further of 25 minutes of intervention as compared with 20-minute intervention was considered as clinical insignificant. Thus, a 20-minute intervention was concluded to be both statistically and clinically effective in reducing dyspnea in patients with COPDAE and was applicable for a busy clinical setting. Reference: Booth S (2006) Report of ‘Improving research methodology in breathlessness’ meeting held by MRC Clinical Trials and Cicely Saunders Foundation. Palliat Med. 20, 219-20.