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Effect of therapeutic pulsed ultrasound on smell dysfunction in subjects with chronic rhinosinusitis

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Smell dysfunction is one of the main symptoms in chronic rhinosinusitis (CRS). Therapeutic ultrasound (US) is suggested as a novel method for treating the CRS. No study has evaluated the effect of therapeutic US in CRS. The aim of this study was to demonstrate the effects pulsed ultrasound (PUS) in CRS subjects with olfactory dysfunction. Eleven CRS subjects with smell dysfunction (mean age 47.90 ± 4.6 years; male 7; female 4) participated in a pretest-posttest study design with 2 measurements before and after 10 treatment sessions and after one month follow up. Participants received pulsed US (1:9), frequency 1 MHz, intensity/duration 1 W/cm²/5 minutes and 0.5 W/cm²/4 minutes for the maxillary and frontal sinuses, respectively. Subjects underwent for 10 treatment sessions, three days a week with US given every other day. The outcome measures were the Persian versions of SNOT-20 and University of Pennsylvania Smell Identification Test (UPSIT). The repeated measures ANOVA were used for analysis. The mean changes of UPSIT scores (11/1 to 19/7) and SNOT-20 scores (41/4 to 19/6) were significantly improved after PUS therapy ($p < 0.001$). At one month follow up, the improvements were sustained. The pulsed ultrasound was effective in improving smell dysfunction and symptoms severity in this sample of patients with rhinosinusitis.

Biography

Atieh Nazem is currently pursuing MSc in Physical Therapy at Tehran University of Medical Sciences, Iran. She has two published articles to her credit.

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