IMPROVEMENT IN ASTHMA SYMPTOMS WITH TRANSCUTANEOUS ELECTRONIC IMPULSE TREATMENT – A CONTROLLED PILOT STUDY

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Rationale: Persistent asthma is characterized by chronic airway inflammation and hyper-reactivity. Mechanisms that cause airway inflammation lead to deranged cell signaling and eventually to airway remodeling. Fenzian™ is an experimental treatment that aims to correct cell signaling by low-current transcutaneous electronic impulse treatment (TEIT). This might ameliorate the inflammatory process and improve symptoms in asthma.

Methods: After 4 weeks of baseline measurements, 12 women and 8 men aged 46.1 (14.9) years, with mild persistent asthma, FEV_1 2.40 (0.62) L, FEV_1/FVC 71 (10) %, mean (SD), were randomized to receive TEIT using a Fenzian™ device or sham treatment with an identical but inactivated device. Patients and research staff obtaining data were blinded. Airway physiology was assessed by spirometry and impulse oscillometry. Asthma control was assessed by validated questionnaires and diary cards. Complete assessments were repeated after 6 weeks of Fenzian™ or sham treatment.

Results: Using mixed effects models, we found significant improvements in morning peak flow from 349 to 360 L/min (P=0.029), morning bronchodilator use 0.55 to 0.30 puffs (P<0.001), afternoon bronchodilator use from 1.06 to 0.48 puffs (P<0.001), asthma control by ACQ (P=0.023), and a composite of daily symptoms by Likert scales (P<0.001). A positive trend was seen in FEF_{25-75} (P=0.052) and TDI was +1.8. No changes were seen with sham treatment.

Conclusion: This sham-controlled pilot study shows a consistent pattern of improved asthma symptoms and reduced bronchodilator use after 6 weeks of TEIT. Further clinical and methodological studies of this treatment approach are justified by these findings.

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