EVIDENCE BASED

ACUPUNCTURE

EVIDENCE SUMMARY - ALLERGIC RHINITIS

ACUPUNCTURE FOR THE TREATMENT OF ALLERGIC RHINITIS

John McDonald, PhD

ALLERGIC RHINITIS

Globally, 10-30% of the population generally suffers from allergic rhinitis, although in some countries the prevalence is as high as 54%.[1, 2] Allergic rhinitis can affect people of any age but is most common in children, and affects genders equally.[3] Allergic rhinitis can be either seasonal/intermittent or perennial/persistent. Typical seasonal triggers for allergic rhinitis are pollens, while persistent triggers include animal hair and dust-mites. Episodes of allergic rhinitis produce sneezing, runny nose, itchy nose (and sometimes eyes) and blocked nose leading to interrupted sleep, fatigue and poor concentration. Allergic rhinitis can have significant negative impacts on quality of life and work performance, leading to productivity losses of billions of dollars annually.[4] Allergic rhinitis sufferers also frequently suffer from other allergic conditions such as asthma and skin rashes, due to the close relationship between the nose, the lungs and the skin (an observation made in the Yellow Emperor's Classic of Internal Medicine more than 2,000 years ago).[5] This observation is consistent with a biomedical perspective as as all three are lined with some form of epithelial tissue.

ACUPUNCTURE FOR THE TREATMENT OF ALLERGIC RHINITIS

According to the most up to date evidence, acupuncture is an effective treatment for allergic rhinitis. Studies also suggest that acupuncture is safer than current commonly-used medications and may be more cost-effective.[6, 7] In 2017, The Acupuncture Evidence Project, co-authored by Dr John McDonald, PhD and Dr Stephen Janz, was published, providing an up-to-date comparative review of clinical and scientific evidence for acupuncture.[8] The Acupuncture Evidence Project included two systematic reviews, two high quality randomised controlled trials, and a clinical practice guideline on allergic rhinitis, as well as two cost-effectiveness studies. Moderate to high quality evidence was reported for the effectiveness and efficacy of acupuncture for allergic rhinitis.[9-13] Symptoms showing the greatest improvement included sneezing, itchy nose, itchy eyes, runny nose, blocked nose and interrupted sleep [12]. A review of studies, which included studies both before and after the dates included in The Acupuncture Evidence Project, found 12 randomised controlled trials, which delivered between 12 and 30 treatments at a frequency between two and five treatments per week. In all of these studies real acupuncture was significantly more effective than sham acupuncture (8 studies) and medication (4 studies).[12-23] Symptoms continued to improve after treatment for up to 3 months. Studies which measured immune system changes also reported significant reductions in inflammatory mediators including substance P (SP), vasoactive intestinal peptide (VIP), interleukin 4 and dust-mite specific IgE.[12, 20, 21] Acupuncture has been recommended in the allergic rhinitis clinical practice guideline of the Otolaryngology Head Neck Surgery Foundation in the US as a treatment option for those who prefer a nonpharmacological treatment.[24]

BIOLOGICAL MECHANISMS OF ACUPUNCTURE FOR ALLERGIC RHINITIS

Acupuncture reduces the symptoms of allergic rhinitis and improves people's tolerance to would-be allergens through a number of mechanisms. When people have allergic rhinitis, the immune system incorrectly identifies some harmless irritants as a threat (allergen), and creates specific immunoglobulins called IgEs against each perceived allergen. These IgEs are anchored to mast cells, in a process known as "priming". When these primed mast cells encounter an allergen (such as pollen) they react by releasing a cocktail of substances which create inflammation in the nasal mucosa.

Once the nasal mucosa becomes inflamed, nerves within the nasal mucosa also release inflammatory neuropeptides such as substance P (SP), calcitonin gene-related peptide (CGRP) and vasoactive intestinal peptide (VIP). These neuropeptides increase the inflammation producing itching, sneezing, runny nose and blocked nose. The hypersensitive nose will then react to a whole host of irritants (apart from allergens) such as perfume, smoke, and temperature or humidity changes.

The allergic inflammatory response involves a veritable orchestra of interactions between receptors and mediators [25]. The main receptors involved in allergic rhinitis include the histamine receptor (the target of antihistamine medications) and another receptor called the transient receptor potential vanilloid 1 (TRPV1). Itching nose and eyes, sneezing and runny nose are closely linked to TRPV1 activation.

STRENGTH OF EVIDENCE

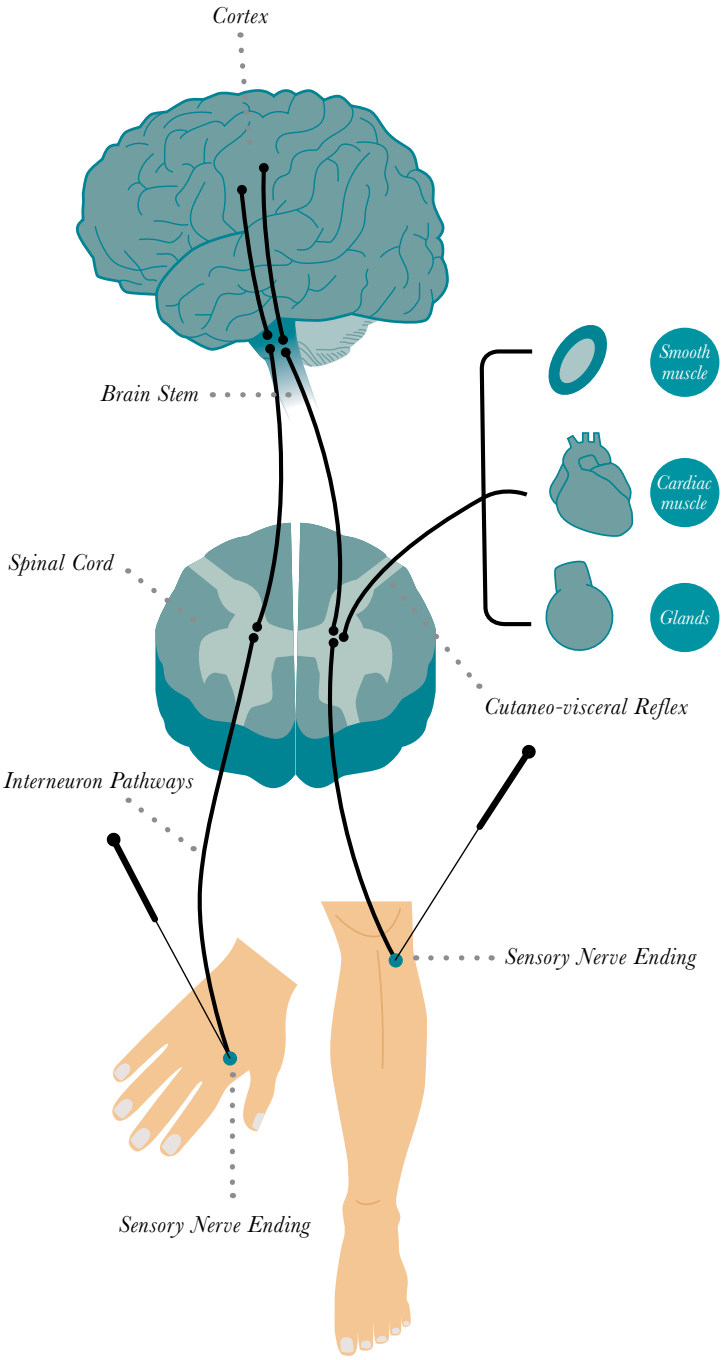
REVIEWS & META-ANALYSES

RANDOMISED CONTROLLED TRIALS

MANY REPORTS

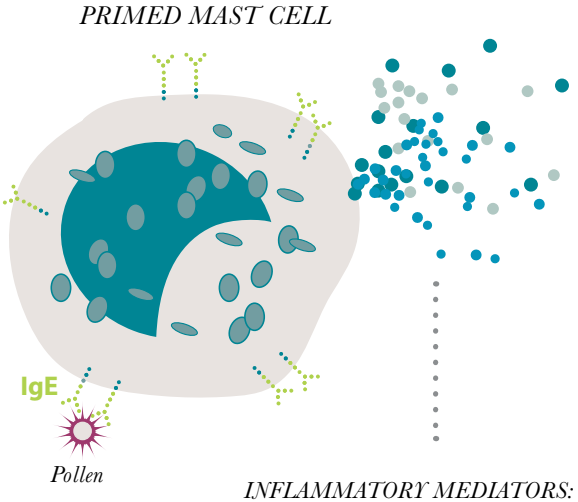
SINGLE REPORTS

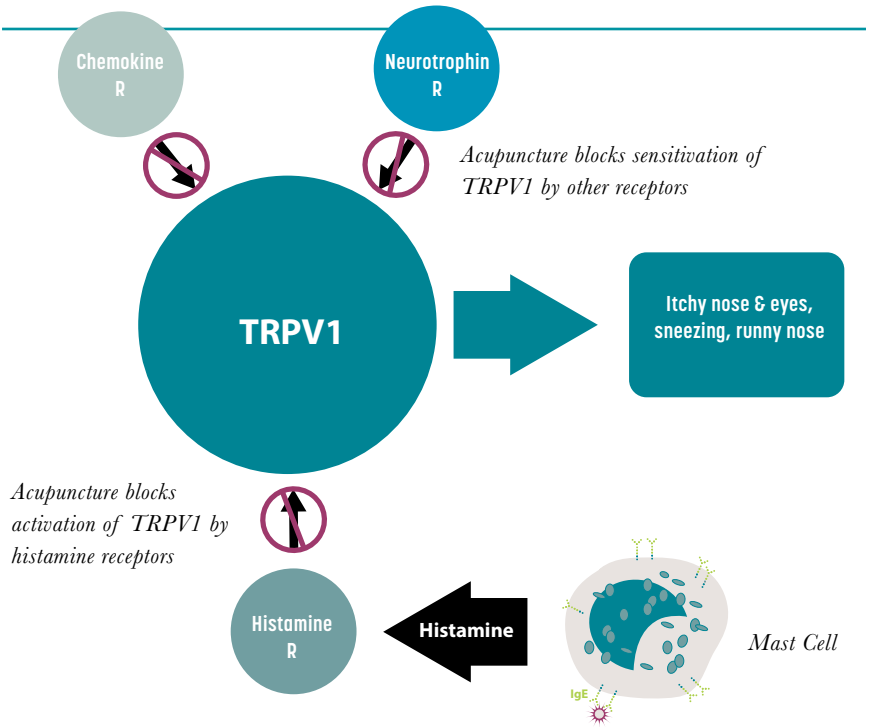
ANIMAL MODELS (Mechanisms)



THE CENTRAL NERVOUS SYSTEM

Acupuncture has been shown to reduce IgE levels and the expression, sensitivity and activation of TRPV1 via numerous different pathways [25]. Acupuncture has also been shown to reduce SP (by 77.8% in the first 24 hours after the first treatment) and VIP in allergic rhinitis, and CGRP in migraine [12, 21, 26]





CONVENTIONAL TREATMENT OF ALLERGIC RHINITIS

The conventional treatment of allergic rhinitis involves avoidance of triggers, oral medications, nasal sprays and allergen immunotherapy.

AVOIDANCE OF TRIGGERS

Pollen sensitive individuals may remove offending plants from their gardens, wear surgical masks when anticipating pollen exposure or even in some cases move to a different location to escape pollens. Dust reduction strategies include fitting mattresses and pillows with allergen reducing covers and removing carpets and curtains from the home and workplace. Pets which trigger reactions may have to be kept out of the bedroom, or in extreme cases re-homed. Avoidance of triggers can be effective but is not always possible or practical.

ORAL MEDICATIONS AND NASAL SPRAYS

Oral over-the-counter antihistamines and decongestants, as well as prescribed oral steroids and mast-cell stabilisers are the most commonly used forms of pharmacological therapy [27]. These may be combine with corticosteroid nasal sprays for temporary symptom relief.

ALLERGEN IMMUNOTHERAPY (AIT)

Allergen immunotherapy, is generally delivered as a course of subcutaneous injections over an extended period, but is now also becoming available in a sublingual form, slipped under the tongue [28]. In contrast to medications which provide temporary symptomatic relief, AIT is regarded as the only pharmaceutical therapy which alters the course of the disease [28]. AIT is often administered under medical supervision in allergy clinics due to the risk of adverse reactions, including anaphylaxis [29].

CONCLUSION

Current evidence suggests that acupuncture is an effective and relatively safe treatment option that can offer both temporary symptomatic relief and ongoing benefits for up to 3 months after treatment. Real acupuncture in studies has outperformed both sham acupuncture and commonly used oral medication. Acupuncture is a recommended treatment for allergic rhinitis for those preferring a nonpharmacologic treatment option.[11]

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