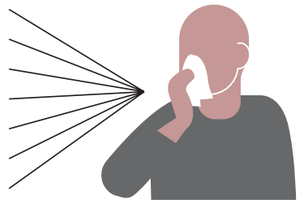
Evidence for Self-Medication
International Review Journal

Allergic Rhinitis and air pollution: New clinical evidence with fexofenadine hydrochloride 180 mg

Worldwide **prevalence** of allergic rhinitis (AR)

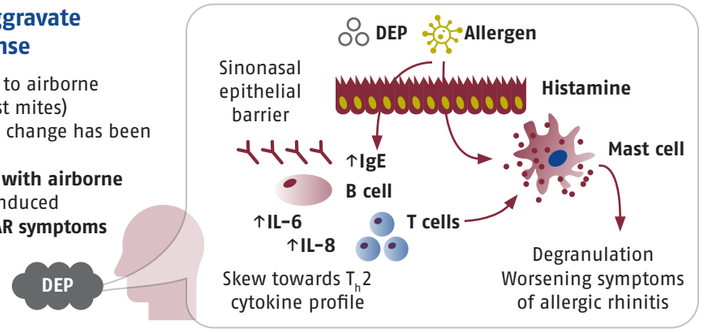
Main allergic rhinitis **symptoms**

- Rhinorrhoea
- Sneezing
- Nasal obstruction
- Nasal itching
- Ocular itching
- Watery eyes
- Throat itching



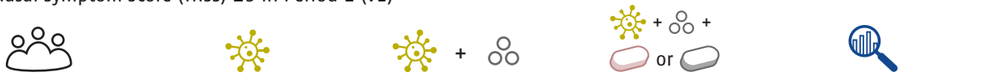
Diesel exhaust particles (DEP) aggravate allergen-induced allergic response

- AR is a **type I hypersensitivity** reaction to airborne allergens, such as pollen (or house dust mites)
- Exposure to **air pollutants** and climate change has been linked to **AR symptom exacerbation**
- DEP, an air pollutant, when **combined with airborne allergen** is able to enhance allergen-induced degranulation, leading to **worsening AR symptoms**



FEXPOLSAR was a phase III, single-centre, sequential, parallel-group, double-blind, randomized study conducted in an environmental exposure unit

Inclusion criteria:
- 2-year history of seasonal allergic rhinitis (SAR) with positive skin prick test to ragweed
- Self-reported history of SAR symptoms aggravated by pollen or air pollutants exposure
- Total Nasal Symptom Score (TNSS) ≥3 in Period 1 (V2)



Adapted from Margarita Murrieta-Aguttes, MD, Sanofi, Paris, France, and Marina Volonte, DVM, Sanofi, Milano, Italy, Evid Self Med 2021;1:210332 | https://doi.org/10.52778/efsm.21.0332. Publication date: 29.11.2021
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Primary endpoints

Participants graded their **Total Nasal Symptom Score** (TNSS) on a 0–3-point scale over 12-hours from baseline for each Period. TNSS was calculated as the sum of **rhinorrhoea, sneezing, and nasal itching scores.**

First primary objective:
to demonstrate the aggravation of the SAR symptoms caused by DEP exposure

Period 2 vs Period 1

Change in TNSS AUC from baseline to hour 12 (TNSS AUC_{0-12})

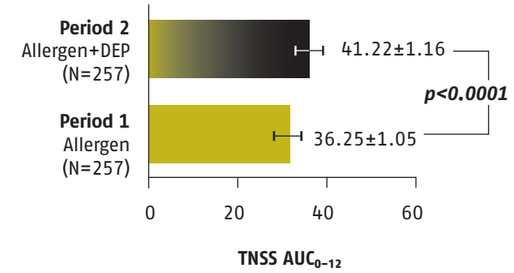
Second primary objective:
to evaluate the efficacy of fexofenadine HCl in alleviating symptoms aggravated by DEP presence

Period 3

Change in TNSS AUC from hour 2 to 12 (TNSS AUC_{2-12})

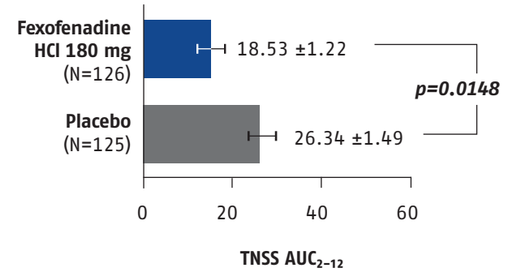
TNSS AUC_{0-12} in Period 1 and 2

A significant **increase in SAR symptoms** from **Period 1** to **Period 2** was observed



TNSS AUC_{2-12} in Period 3

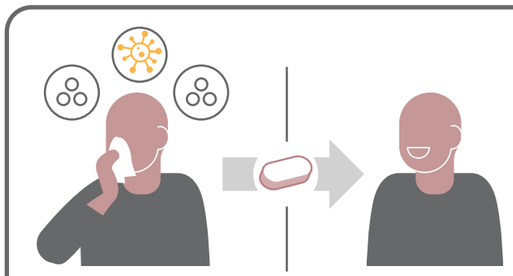
A significant **decrease in DEP-aggravated, SAR symptoms was observed with fexofenadine HCl** compared with placebo



The proportion of subjects reporting **treatment-emergent adverse events** was higher in the placebo group

15.1%
Placebo group

12.6%
Fexofenadine HCl group



- **DEP,** a common constituent of air pollution, significantly **aggravates pollen induced allergic rhinitis symptoms**
- **Fexofenadine HCl 180 mg significantly improves pollutant-aggravated pollen induced SAR symptoms vs placebo**

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