

# hypertonic saline is more effective

## than normal saline in seasonal allergic rhinitis in children

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Allergic rhinitis (AR) is a very common childhood disease that is associated with a significant reduction in the patients' quality of life. Its treatment combines educating the patients and their parents, immunotherapy and drug administration.

However, even the best approach does not relieve the symptoms of a number of patients. Alternative therapies are particularly needed for children because the fear of adverse events frequently reduces parental compliance to the prescribed drugs, and immunotherapy is less easy to administer than in adults.

In this prospective investigator-blinded study we evaluated whether children, with a documented history of seasonal grass pollen-related AR, benefit from nasal irrigation by assessing the effects on nasal signs and symptoms, on middle ear effusion and on adenoidal hypertrophy. We randomized children aged 5 to 9 years (median age 82 months) to normal saline or hypertonic saline (a 2.7% sodium chloride solution), administered twice-daily using a disposable 20 ml syringe, or no treatment.

Nasal symptoms (rhinorrhea, itching, sneezing, nasal obstruction), swelling of turbinates, adenoid hypertrophy or middle ear effusion were assessed at baseline and after 4 weeks of treatment. Two hundred and twenty children (normal saline: 80; hypertonic saline: 80; no treatment: 60) completed the study. After four weeks, all the considered items were significantly reduced in the group receiving hypertonic saline ( $P < 0.0001$ ), whereas in the group receiving normal saline only rhinorrhea ( $P = 0.0002$ ) and sneezing ( $P = 0.002$ ) were significantly reduced. There was no significant change in any of the items in the control group.

The duration of oral antihistamines was significantly lower in the children receiving hypertonic saline than in those treated with normal saline or in controls. No adverse events were reported and parental satisfaction and compliance with the procedure were globally very good, regardless of the solution used.

Using our procedure, hypertonic saline is effective, inexpensive, safe, well tolerated and easily accepted by children with seasonal grass pollen-related AR and their parents. Our data suggest that nasal irrigation with hypertonic saline might be included in the wide spectrum of therapies recommended for grass-pollen AR.