

Natural history of nonallergic rhinitis in children, a long term follow up

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Abstract

Rationale: Nonallergic rhinitis (NAR) is characterized by symptoms of nasal mucosal inflammation without evidence of allergic sensitization. The long term outcome of NAR in children is not well studied. The objective of study is to determine the natural history of NAR and the development of allergic rhinitis (AR) in this group of children.

Method: 82 patients who were diagnosed with NAR and followed more than 10 years by pediatric allergists, were invited to be re-evaluated. Clinical data as well as skin prick test (SPT) results were collected.

Result: The median follow up time was 13.65 (11.10-14.91) years. Upon re-evaluation, 40 (48.8%) patients developed AR. Common sensitization was house dust mite (HDM, 85%), followed by cockroach (40%) and cat (27.5%). The significant triggering factor for NAR patients was irritant ($P=0.037$). The initial severity of rhinitis between NAR and AR patients were not significantly different. At the re-evaluation, the patients who developed AR did not have different nasal symptoms, remission rate and rescue medication score compared to NAR patients. However, one AR patient required allergen immunotherapy.

Conclusion: Almost half of previously diagnosed NAR in children can develop AR. The most sensitized allergen was HDM. The significant triggering factor for NAR patients was irritant. The remission rate of NAR and AR was 11.9% and 17.5% respectively.

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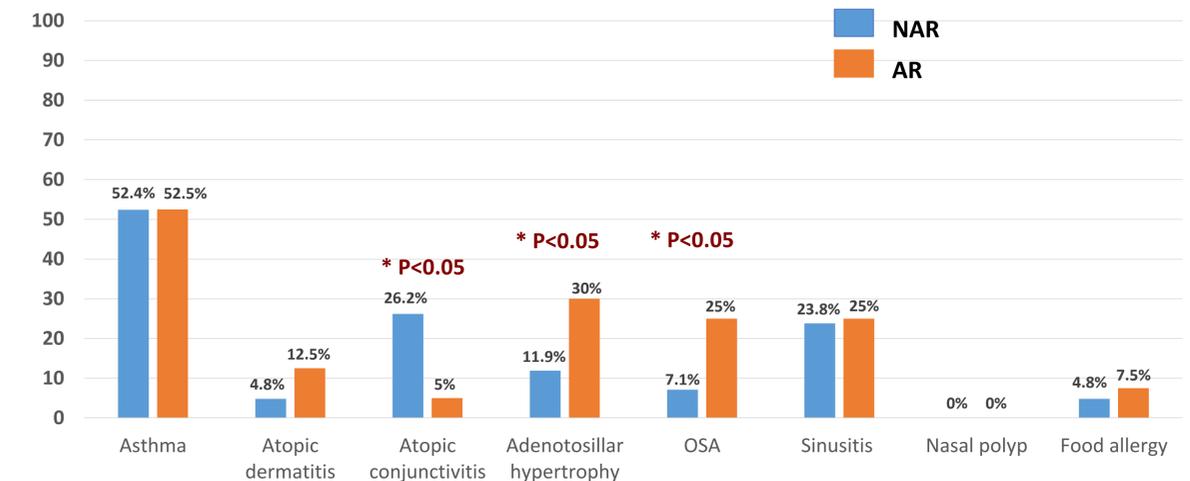
Result

- Upon re-evaluation, 40 (48.8%) patients developed AR.
- Common sensitization was house dust mite (HDM, 85%), followed by cockroach (40%) and cat (27.5%).
- After adjusting for confounders, the significant triggering factor for NAR patients was irritant ($P=0.037$).
- The initial severity of rhinitis and nasal symptoms are not different between each group.
- Clinical remission without using medication was found in 5 (11.9%) NAR and 7 (17.5%) AR patients ($P=0.54$).
- The median rescue medication score in developed NAR and AR groups were 1 (0,5) and 0 (0,6), respectively ($P=0.85$).

Table 1: Comparison of demographic data between the NAR and the AR patients at the initial evaluation

Parameters	Current NAR (n=42)	Current AR (n=40)	P-value
Median age onset (yr) (range)	3 (1-9)	2 (1-6)	0.05
Median follow up time (yr) (range)	13.87 (11.10-14.91)	12.88 (11.45-14.91)	0.25
Sex: male, n (%)	26 (61.9%)	22 (55%)	0.65
Family history of atopy, n (%)	18 (42.9%)	20 (50%)	0.66
Environment			
- Smoking in family, n (%)	16 (38.1%)	19 (47.5%)	0.50
- Pets, n (%)	20 (47.6%)	13 (32.5%)	0.18
Triggering factors			
- Temperature change	40 (100%)	40 (95.2%)	0.49
- Irritant	13 (31%)	11 (27.5%)	0.81
- Dust	12 (28.6%)	11 (27.5%)	1.00
- Animal dander	2 (4.8%)	3 (7.5%)	0.67
- Pollen	0	0	-

Figure 1: The percentage of the NAR and AR patients with each comorbidity at the initial evaluation



Chi-square test

Table 2: Comparison of environmental and triggering factors between the NAR and the AR patients at the re-evaluation

Parameters	Current NAR (n=42)	Current AR (n=40)	P-value	OR (95%CI)
Environment				
- Smoking in family, n (%)	16 (38.1%)	14 (35%)	0.82	0.86 (0.36-2.15)
- Pets, n (%)	15 (35.7%)	18 (45.0%)	0.50	1.47 (0.61-3.58)
Triggering factors				
- Temperature change	21 (50%)	17 (42.5%)	0.52	0.74 (0.31-1.77)
- Irritant	23 (54.8%)	11 (27.5%)	0.02	0.31 (0.13-0.79)
- Dust	25 (59.5%)	20 (50.0%)	0.51	0.68 (0.28-1.63)
- Animal dander	3 (7.1%)	7 (17.5%)	0.19	2.76 (0.66-11.52)
- Pollen	1 (2.4%)	4 (10.0%)	0.20	4.56 (0.49-42.65)

Conclusion

- Almost half of previously diagnosed NAR in children can develop AR.
- The most sensitized allergen was HDM.
- The significant triggering factor for NAR patients was irritant.
- The remission rate of NAR and AR was 11.9% and 17.5% respectively.