Recurrent wheeze (RW) in infants and preschool children: A practical real-world approach

Proposed clinical algorithm for children < 7 years of age with RW

1- Confirm true wheeze and evaluate for red flags

- Persistent symptoms since birth
- Failure to thrive; Severe or recurrent pneumonia
- Poor response to bronchodilators
- Neonatal respiratory symptoms

2- Triggers only during viral respiratory infections?

YES

Episodic viral wheeze (EVW)

- Wheezing only during viral infections
- Asymptomatic between episodes
- Supportive treatment during episodes
- Intermittent bronchodilator therapy

NO

Multiple-Trigger Wheeze

- Viral infections, exercise, allergens & environmental

2.1- Assess risk for asthma

- Family history of atopy or asthma
- Eczema or allergic sensitization
- Recurrent symptoms between viral infection
- Positive Asthma Predictive Index

2.2-Exclude other diagnoses

- Gastroesophageal reflux disease
- Bronchiolitis obliterans
- Foreign body aspiration
- Primary Ciliary Dyskinesia
- Congenital airway abnormalities

3- Frequent or severe symptoms?

YES

Trial of inhaled corticosteroids (ICS)

Reassess clinical response after 8-12 weeks

Improved: Continue therapy

No improvement: Revaluate plan

4-Check adherence to and correct use of medication

Consider referral to specialist:

- Unclear diagnosis
- Poor response to treatment
- Severe attacks
- Parents or doctor second opinion requested

The four possible pillars for diagnosing, monitoring, and assessing lung health in children with RW

1- Clinic

Asthma Predictive Index

2- Structure

Chest Tomography
X-ray
Magnetic resonance Imaging
Ultrasonography
Lung biopsy followed by anatomopathological examination

3- Pulmonary Function

Spirometry
Lung Clearence Index
Inert Gas Whashout
Impulse Oscillometry
SatO2
Plethysmography
Mass Spectrometry
Arterial Blood Gases

4- Biomarkers and Tests

Complete blood count
Immunoglobulins
Eosinophils
Genetic testing
Skin test
Bronchoscopy
Bronchoalveolar lavage
Sputum cytology
Sputum microscopy and culture
FeNO and nNO
Specific tests for differential diagnosis
Numerous other biomarkers in blood, sputum, and bronchoalveolar lavage fluid

Look for absence or positive or negative correlations

Key Points

- RW is heterogeneous; often viral-related and age-dependent.
- Persistent or multi-trigger wheeze → higher asthma risk.
- ICS = first-line controller for frequent/severe cases.
- Severity depends on inflammatory endotype and lung development.
- Diagnosis requires clinical history, exclusion of alternatives, and treatment response.

REFERENCES

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