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## Upper respiratory tract infection and evidence based medicine- A Review

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### Abstract

Upper respiratory tract infection (URTI) occurs commonly in both children and adults and is a major cause of mild morbidity. A variety of viruses and bacteria can cause upper respiratory tract infections. The most common bacterial agents causing sinusitis are *S. pneumoniae*, *H. influenzae*, *M. catarrhalis*, *S. aureus* and *S. pyogenes*. Common cold continues to be a large burden on society, economically and socially which are caused by viruses. Upper respiratory tract infections including nasopharyngitis, pharyngitis, tonsillitis and otitis media constitute 87.5% of the total episodes of respiratory infections. Cough, Sore throat, Runny nose, Nasal congestion, Headache, Low-grade fever, Sneezing, Malaise and Myalgias are common clinical manifestation of URTIs. Most URTIs are self-managed. Amoxicillin is antibacterial of choice. The alternative medications include oral cephalosporins (cefactor, cephalexin), amoxicillin or macrolides, anti-histamines and acetaminophen. In this review article, we discuss the, epidemiology, causes, clinical manifestation, diagnosis, management, Evidence Based Medicine.

**Keywords:** Upper respiratory tract infection, evidence based medicine, unani medicine

### Introduction

Respiratory tract infections (RTIs) are the most common, and potentially most severe, of infections treated by health care practitioners. [1] A variety of viruses and bacteria can cause upper respiratory tract infections. These cause a variety of patient diseases including acute bronchitis, the common cold, influenza, and respiratory distress syndromes. Defining most of these patient diseases are difficult because the presentations connected with upper respiratory tract infections (URIs) commonly overlap and their causes are similar. [2]

Upper respiratory tract infections can be defined as: self-limited irritation and swelling of the upper airways with associated cough with no proof of pneumonia, lacking a separate condition to account for the patient symptoms, or with no history of COPD/emphysema/chronic bronchitis. [3] Upper respiratory tract infections involve the nose, sinuses, pharynx, larynx, and the large airways. [4]

### Epidemiology

Acute respiratory infection (ARI) is the major cause of mortality among children aged less than 5 years, especially in developing countries like India. Lower respiratory tract infections (LRTIs) are the leading cause of under-five morbidity globally. [5]

ARI poses a major challenge to the health system in developing countries because of high morbidity and mortality. It is estimated that Bangladesh, India, Indonesia, and Nepal together account for 40% of the global ARI mortality. [6]

Interestingly infants living in overcrowded surroundings and sub-optimally breast-fed are more likely to suffer ARI-related illnesses. In India, ARI accounts for 30-50% of visits to health facilities and 20-40% of hospital admissions. In urban slum areas, ARI constitutes over two-thirds of all childhood illnesses. [7]

Acute respiratory infections accounts for 20-40% of outpatient and 12-35% of inpatient attendance in a general hospital. Upper respiratory tract infections including nasopharyngitis, pharyngitis, tonsillitis and otitis media constitute 87.5% of the total episodes of respiratory infections. [8]

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### **Etiology**

There are various etiological factors which is responsible for URTIs. Common cold continues to be a large burden on society, economically and socially. [8]

The most common virus is the rhinovirus. [9] Other viruses include the influenza virus, adenovirus, enterovirus, and respiratory syncytial virus. [10] Bacteria may cause roughly 15% of sudden onset pharyngitis presentations. The most common is *S. pyogenes*, a Group A streptococcus. [11]

### **Clinical Symptoms**

Clinical manifestation of respiratory tract infection depends upon causative agents, severity of infection, weak immunity and other risk factors. There are various clinical features which are associated with Cough, Sore throat, Runny nose, Nasal congestion, Headache, Low-grade fever, Sneezing, Malaise and Myalgias are common clinical manifestation of URTIs. [12]

### **Diagnosis**

History taking, clinical examinations, Haemogram with ESR, CRP, PCR, Rapid diagnostic tests, X-ray, temperature, pulse, sputum examination, Nasopharyngeal aspirate and throat swabs, Nucleic acid extraction are helpful for the diagnosis of URTIs. [13]

### **Complications**

Complications of upper respiratory tract infections are relatively rare, except with influenza. [14] Complications of influenza infection include primary influenza viral pneumonia; secondary bacterial pneumonia; sinusitis; otitis media; co-infection with bacterial agents; and exacerbation of preexisting medical conditions, particularly asthma and chronic obstructive pulmonary disease. Pneumonia is one of the most common complications of influenza illness in children and contributes significantly to morbidity and mortality. [12]

### **Management**

Management of URTIs emphasis upon various mode of management which is described below as separate headings:-

#### **Symptomatic treatment**

The main emphasis of management is symptom relief of fever, nasal congestion and coughing. [15] A variety of adrenergic agonist, anticholinergic, antihistamine preparations, antitussives and expectorants are marketed for these purposes. [16]

Common constituents of such medication include first generation antihistamines, antipyretics (paracetamol) or anti-inflammatory agents (ibuprofen), cough suppressants such as dextromethorphan, expectorants (guaifenesin) and decongestants such as pseudoephedrine and phenylpropranolamine. [17]

#### **Antibiotics**

The alternative medications include oral cephalosporins (cefaclor, cephalexin), amoxicillin or macrolides, Antibiotic use in childhood URTIs remains contentious since more than 90% of the infections are of viral etiology. The reasons cited for prescribing antibiotics include diagnostic uncertainty, socio-cultural and economic pressures, concerned over malpractice litigation and parental expectations of an antibiotic. [18]

Antibiotics are overprescribed for URTIs and promote

antibiotic resistance. However, there is a role for defined indications, such as severe acute rhinosinusitis lasting more than ten days and severe acute otitis media. [19]

### **Unani Treatment**

Unani treatment emphasis upon various mode of treatment which have own framework.

#### **Usule Ilaj (Line of Treatment) of Amraz-e-Tanaffus**

According to Unani Philosophy Usool-e-Ilaj depends upon severity, duration and condition of diseases which differ from disease to disease. In general the usool-e-ilaj may be sub divided into following headings: -

#### **Izal-e-sabab**

Exposure to intrinsic and extrinsic factors should be avoided because it may affect directly or indirectly which are Asbab-e-Badiyah, Asba-e-Wasela and Asba-e-Badni. [20]

#### **Ilaj bil Ghiza**

Use of Ghizae Lateef like Ma-us-Shaer because it has 10 benefits and avoidance of oily, ghaleez lesdaar and delayed digestible foods, meat, alcohol, mustard, tea, onion, garlic. Abstinence from Sour things like curd along with ghaleez and saqeel ghiza is prescribed. [20]

#### **Tadabeer**

There are some specific regimes which eliminate the morbid materials from the body and normalize the health like Fasd (venesection), Inkebab (steam inhalation), Takmeed (fomentation) and use of suitable oils for Qutoor (nasal drops). [20] It is mentioned with reference to Jilani and Azam Khan that during the initial stage, one should Try to expel the mad'da by Inkebab performed with Banafsha, Nilofar, Nakhuna and Babuna, and apply fateela in the nose to divert the madda from throat or chest. Sneezing with the help of luke warm shoneez and zeera is advised. It is mentioned that medicines, used to arrest sneezing, should be avoided, as they may interfere with the nuzj of the mad'da, leading to collection of fuzlat in the brain. Fasd is advisable if damavi khilt is involved and it is followed by mushilat. According to Jalinoos and Zakaria al Razi, cupping over the nape of the neck is advisable for itching in the nose and sneezing. Sleeping at day hours should be avoided. [20]

#### **Taadil-e-Mizaj**

Su-e-mizaj sada should be corrected with use of appropriate regimes and Su-e-mizaj maddi should be modulated through munzijat followed by Tanqia. Hammam by luke warm water is advisable before prescribing munzijat. [20]

#### **Single Drugs**

Single Drugs used for management Sapistan (*Cardolia latifolia*), Tukhm Khatmi (*Althaea officinalis*), Khubazi (*Malvea sylvestris*), Unnab (*Ziziphus jujuba*), Gaozaban (*Borago officinalis*), Banafsha (*Viola odorata*), Tukhm Khashkhash (*Papaver somnifarem* seeds), Khaksi (*Sismbrum irio*), Bahi Dana (*Cydonia oblonga*), Neelofar (*Nymphaea lotus*), Zafran (*Crocus sativus*), Qaranfal (*Syzigium aromaticum*), Amaltas (*Cassia fistula*). [21]

#### **Compound Drugs**

There are some compound Unani formulations which are highly effective for the management of Amraz-e-tanaffus wa Amraz-e-Ra's like Sharbate Banafsha, Sharbate Faryadris,

Sharbat Unnab, Sharbate Khashkhash, Sharbate Aezaj, Lauq Sapistan, Khameere Khashkhash, Khameera Gaozaban, Khameera Marwareed, Tiryaqe Nazla, Habbe Shifa. [22]

### Joshandah

Abresham 5 gm, Gule Surkh 5 gm, Kakra Singhi 5 gm, Gule Banafsa 5gm, Mulethi 7 gm, Maghz Amaltas 6 gm, Berge Gaozaban 3 gm, Sapistan 9 adad as decoction with Sharbat Unnab 20 ml. [23]

### Evidence Based Medicine

There are some evidence based medicines which are highly effective for the management of URTIs and has been proved through clinical studies like Arque Ajeeb (inhalation), Nuqu Nazla, Itriphal Ustakhuddus, Habbe Shifa, Khamira Nazla, Sharbat Unnab. [24, 25]

### Conclusion

URTIs are arising commonly in those peoples whose immunity is weak and living in overcrowding area. Nazla wa Zukam is more common and which is also precursor of different disease. In Unani literature, such conditions are described under the caption of Wabai Amraz (epidemic disease). Using of Unani medicine is highly effective for the management of URTIs.

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