Respiratory tract condition

COMMON COLD

Clinical pharmacy

Forth stage

By assist lecturer

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content

- Definition
- Patient assessment
- Nonpharmacological treatment
- Pharmacological treatment
- what you should ask about the common cold
- Task

Objectives

- Know the common cold signs and symptoms.
- Differentiate between the common cold and the flu.
- Determine the most appropriate treatment for the common cold.

- **Common cold: is a self-limiting viral infection of the upper respiratory tract.**

- **routes of transmission are:**

1-Manual transmission (e.g. hand- to-hand contact).

2-Inhalation of droplets spread by sneezing and coughing.

Patient assessment with common cold (questions and answers)

- **A- Age:**

Very young patients and very old patients required referral. Also age affect the choice of treatment.

- **B- Duration:**

Generally

Abrupt onset of symptoms **May indicate flu or COVID 19.**

Gradual onset of symptoms **May indicate common cold.**

- **C- Symptoms:**

Symptoms typically are worst on day 2 or 3 of illness and last about 1 week(but in about 1/4 of patients it may last for about 2 weeks or longer).

Symptoms of common cold are:

1-Sore throat:

Sore throat The patient often feels their throat is dry and sore during a cold and this may sometimes be the first sign that a cold is imminent.

A sore throat can be a prominent feature in colds and flu, and it is often treated erroneously as a throat infection.

Sore throat can also be a feature of COVID- 19

2-Runny / congested (or blocked) nose:

Initially clear watery fluid after 1-2 days becomes thicker mucus.

3-Sneezing/ coughing

Sneezing occurs because the nasal passages are irritated and congested.

A cough may be present (either because the pharynx is irritated (producing a dry, tickly cough)

or as a result of irritation of the bronchus due to postnasal drip.

4. Aches and pains/headache

- Headaches may be experienced because of inflammation and congestion of the nasal passages and sinuses.
- A fever may also cause headache.
- A persistent or worsening frontal headache (pain above or below the eyes) may be due to sinusitis.
- People often report muscular and joint aches and these are more likely to occur with flu and COVID- 19 than with the common cold

5. High temperature

- Those suffering from a cold often complain of feeling hot; however, in general, a high temperature (e.g. exceeding 38°C) is not present.
- The presence of fever may be an indication that the patient has flu or COVID-19 rather than a cold

6-Ear ache:

A blocked uncomfortable ear is often present and does not need a referral if it does not persist.

A very painful ear needs a referral.

Summer colds

The main symptoms of summer colds are nasal congestion, sneezing and irritant watery eyes; similar symptoms are commonly caused by allergic rhinitis

Assessment CONT.

- **D- Previous history:**

Patient with a history of asthma (asthmatic attack can be triggered by respiratory viral infection) or lung disease e.g. chronic bronchitis (which can be complicated by a secondary chest infection) --required referral for further investigations.

- **F- Flu:**

Differentiating between colds and flu is needed.

Flu is generally considered to be likely if:

1-Temp. Is 38c or higher (37.5c in elderly).

2-At least one of the respiratory symptoms (cough, sore throat, nasal congestion, or rhinorrhoea) is present.

3-At least one of the constitutional symptoms (headache, malaise, myalgia, sweat, chills) is present.

❑NOTE:

- In common cold the upper respiratory symptoms are the most prominent while in flu the constitutional symptoms are predominant and fever is present in more than 95% of patient.

- Flu generally settle with no need for referral, however , flu can be complicated by secondary lung infection (pneumonia) ; particularly in the young, elderly, or people with lung or heart problems, warning sign and symptoms of complication:(severe or productive cough, persisting high fever :reoccur after 2 days of recovery, delirium ,pleuretic chest pain) required referral for further investigations.

COLD SYMPTOMS

- Low or no fever
- Occasional Headache
- Stuffy, runny Nose
- Sneezing
- Mild, Hacking cough
- Slight aches and pains
- Mild fatigue
- Sore throat
- Normal energy level

FLU SYMPTOMS

- High fever
- Constant Headache
- Clear nose
- Occasional Sneezing
- Cough, often becoming severe
- Often severe aches and pains
- Several weeks of fatigue
- Occasional sore throat
- Extreme exhaustion

RTIs (self- limiting) – usual durations

The average total lengths of the illnesses are as follows:

- Acute otitis media (AOM): 4 days
- Acute sore throat/acute pharyngitis/acute tonsillitis: 1 week
- Common cold: One and a half weeks
- Acute rhinosinusitis: Two and a half weeks
- Acute cough/acute bronchitis: 3 weeks

When to refer

- Earache not settling with analgesic
- In the very young
- In the frail and old
- In those with heart or lung disease, e.g. COPD, kidney disease, diabetes and a compromised immune system
- With persisting fever and productive cough
- With delirium
- With pleuritic- type chest pain
- Asthma

B-Non pharmacological measures:

Non-drug therapy includes:

1- increased fluid intake which may loosen the mucus and promote drainage.

2- getting adequate rest may help to recover quickly.

3- adequate nutrition.

4- saline solution can soothe the irritated nasal tissue and moisturize nasal mucosa and it can be given to all age groups and during pregnancy.

- There are already formulated saline drops or spray products in the market.
- Dose: use as often as needed.

C- Pharmacological therapy:

1- Decongestants (sympathomimetics):

A-Systemic (oral) decongestants:

✓like Pseudoephedrine and phenylephrine: reduce nasal congestion by constricting dilated BV in the nasal mucosa.

✓C/I: Systemic (oral) decongestants cause stimulation of the heart, increase the BP, and may cause hyperglycemia---avoid in:(D.M, Ischemic heart disease (angina, M.I), hypertension, and hyperthyroidism).

B-Topical(drop/spray) Nasal Decongestants(sympathomimetics):

1) Classification and Doses:

type	Example(s)	dose
Short acting (4-6 hours).	**phenylphrine, Naphazoline, tetrahydrozoline**	**2 drops/sprays q 4-6 hours p.r.n (but Naphazoline q 6 hours)**
Intermediate acting (8-10 hours).	**Xylometazoline(Otrivine®):** **0.1%: ≥12 years** **0.05%: 2-12 years**	**2 drops/sprays q 8-10 hours p.r.n**
Long acting (12 hours).	**Oxymetazoline(Nazordine®):** **0.05%: ≥12 years** **0.025%: 2-12 years**	**2 drops/sprays q 12hours p.r.n**

2) Nasal Spray or Drop?

- Nasal sprays are preferable for adults and children aged over 6 years because the spray has a faster onset of action and covers a large surface area.

- Nasal drops are preferable for children aged below 6 years because their nostrils are not sufficiently wide to allow effective use of sprays.

- (But the drops cover a limited surface area and are easily swallowed which increases the possibility of systemic effects).

3) Benefits of systemic decongestants:

- recommended for those patients in whom Systemic (oral) decongestants are to be avoided. (i.e. D.M., Ischemic heart disease (angina, M.I.), hypertension, and hyperthyroidism).

4) Duration of treatment with Topical Nasal Decongestants (sympathomimetics):

- the pharmacist should advise the patients not to use the product for longer than 7 days (3-5 days in some references) because Rebound congestion (Rhinitis medicamentosa) (with congestion returning often worse than before) can occur with topically applied (especially short-acting) but not with oral sympathomimetics.

Cautions

Respiratory Problems

Diabetes

Heart disease

Hypertension

Hyperthyroidism

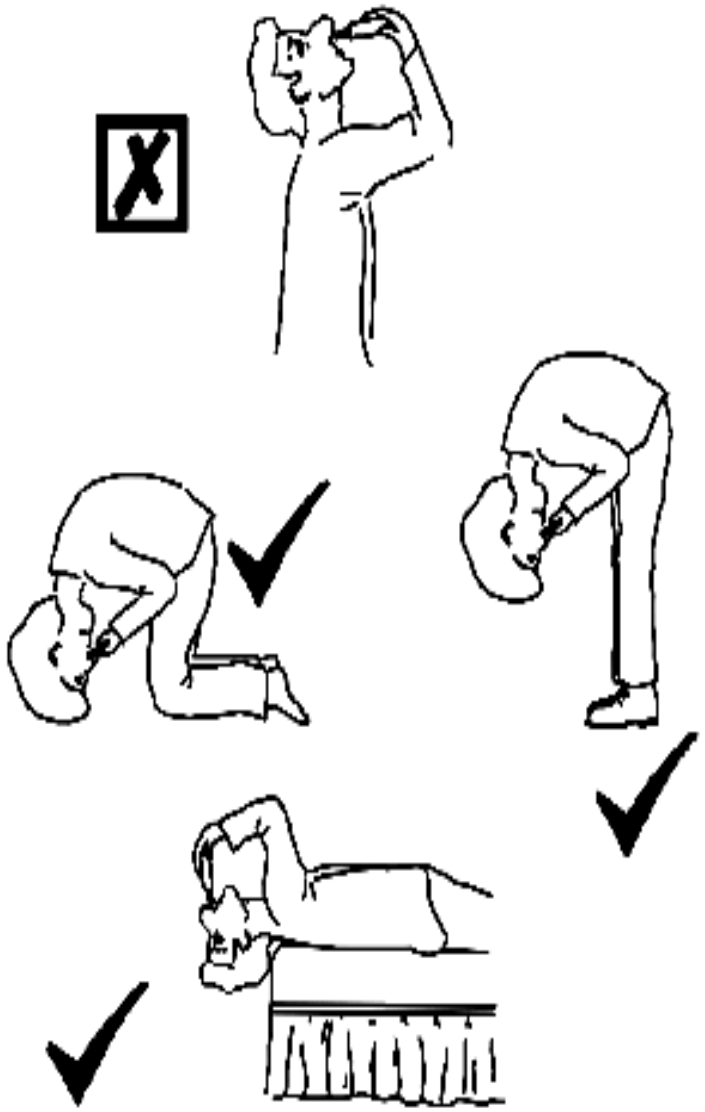
Interactions:

- Avoid in those taking MAOIs (e.g. phenelzine)
- Reversible inhibitors of monoamine oxidase A (e.g. moclobemide)
- Beta blockers
- Tricyclic antidepressants (e.g. amitriptyline) – a theoretical interaction that appears not to be a problem in practice

5) Topical nasal decongestants:

- can be given to pregnant women after the 1st trimester (i.e. the 1st three months) of pregnancy.
- Not OTC for children < 2 years.
- Not recommended for children <6 months (or 3 months in BNF) because they are obligate nose breathers and rebound congestion can cause obstructive apnea.
- Saline nose drops can be used from birth to help with congestion. This would be more suitable and safer alternative than topical sympathomimetics.

6) Administration of nasal spray and nasal drop:



كيف تستعمل قطرة الانف

١-قم بتنظيف الانف من اي ترسبات اولا.

٢-اتخذ إحدى الوضعيات الثلاث المؤشر عليها بعلامة(صح)(والتي تؤمن انتشار القطرة على كامل السطح الداخلي للانف) علما ان وضعية الاستلقاء على السرير مع تدلي الراس من الحافة بحيث تكون فتحة الانف الى الاعلى (كما في الشكل)هي الاسهل .

٣- ضع العدد المطلوب من القطرات في داخل الانف ثم ابق على وضعك لمدة دقيقتين تقريبا((مع تحريك الراس من جانب الى جانب))قبل القيام وذلك لمنع انسكاب القطرات خارج الانف.

كيف تستعمل بخاخ الانف

١- نظف انفك جيدا.

٢-ارفع الغطاء (كما في الشكل ١)ثم امسك البخاخ (كما في الشكل ٢)

ملاحظة مهمة:عند استعمال البخاخ لاول مرة او عند عدم استعماله لبضعة ايام فقم بالضغط عدة مرات الى ان يبدا البخاخ بالبـــــــخ.(كما في الشكل ٢)

٣-ادخل راس البخاخ في الانف قليلا وليس الى الداخل كثيرامع غلق فتحة الانف الاخرى بالاصبع.

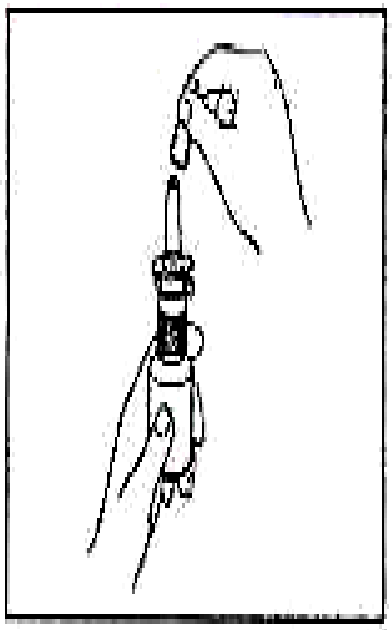
ثم قم بتوجيه راس البخاخ الى الجهة الخلفية من الانف وليس الى الاعلى (كما في الشكل ٣ الرسم الاسفل)

٤- قم باخذ شهيق عن طريق الانف وفي نفس الوقت اضغط على البخاخ بسرعة.

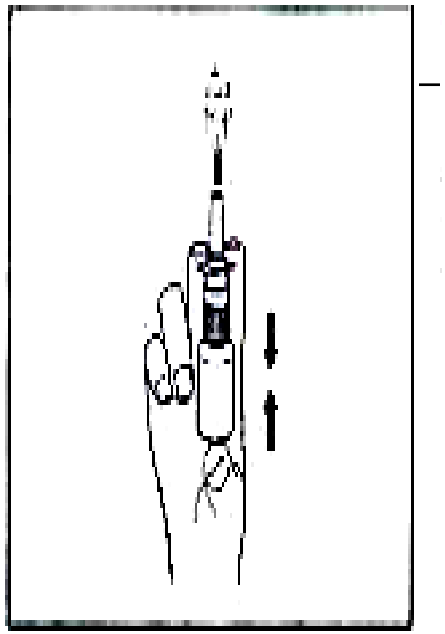
٥-اخرج الزفيرالتالي من الفم وليس الانف.مع تجنب تنظيف الانف بعدها لمدة ربع ساعة تقريبا.

٦-تتبع نفس الطريقة مع فتحة الانف الاخرى.

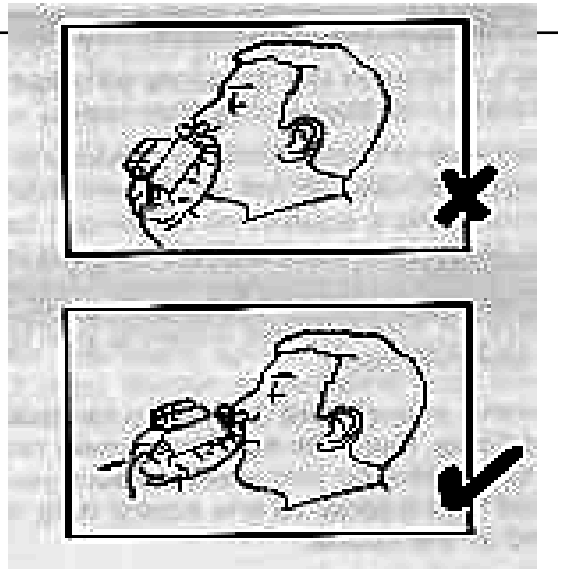
شكل ١



شكل ٢



شكل ٣(**توجيه راس البخاخ الى الجهة الخلفية من الانف وليس الى الاعلى**)



2- Antihistamines:

- **R**unny nose (rhinorrhoea) and sneezing are not so effective in reducing nasal congestion.

- There is no evidence that any antihistamine is preferable to another in the treatment of rhinorrhea.

Antihistamine can be classified into:

A- Sedating Antihistamine:

Examples of OTC sedating antihistamines are:

Chlorpheniramine (Histadin® tablet and syrup), Dexchlorpheniramine (polaramine® tablet), and Diphenhydramine (Allermine® tablet and syrup)

- **S/Es:** sedation and drowsiness (patients should be informed) and anticholinergic S/Es (i.e. dry mouth, urinary retention, constipation)the elderly patients are more susceptible to these.

- **Used with caution** for patients with Glaucoma, or prostate hypertrophy and in elderly patients.

- **Drug Interactions**: the sedative effects of antidepressants, anxiolytics, and hypnotics are likely to be enhanced by sedating antihistamines.

- **Antimuscarinic drugs**' adverse effects are also more likely to be problematic if antihistamines are taken by people using some inhaled drugs containing antimuscarinics used for COPD, such as ipratropium or tiotropium.

B- Non-Sedating Antihistamine:

Examples of OTC non-sedating antihistamine are:

Loratadine (clarityn® tablet and syrup).

Cetirizine (Zirtek® tablet and syrup).

- They are generally preferable over the older antihistamines because of much lower incidence of S/Es.
- Adult dose of Loratadine: 10 mg once daily.

- Note: although the drowsiness is rare, but the warning that these drugs may affect driving and skilled tasks is still present.

3-Combination products:

sympathomimetics (for congestion) + Antihistamine (for rhinorrhoea and sneezing)

❑The antihistamine is usually combined with Sympathomimetics because :

A- The suppression of rhinorrhea can provoke congestion so the Sympathomimetics will offset this effect.

B- Sympathomimetics may also help to counteract sedation caused by the antihistamines but not counteract other side effects such as dry mouth, and urinary retention,……..

❑Examples of OTC products are:

Actifed® tablet and syrup: which is composed of Triprolidine (sedating antihistamine) and Pseudoephedrine (sympathomimetics).

4- Analgesics, antipyretics, and cough preparations:

- Systemic analgesics and antipyretics (e.g. Paracetamol, Ibuprofen) are effective for aches or fevers which may be associated with the common cold.
- In addition, cough, when present, may be treated by suitable cough products (see cough).

5- Vitamin C in common cold:

A systematic review found that high- dose vitamin C (over 1 g/day) taken prophylac tically could reduce the duration of colds by a slight amount (about 8%).

Although it is relatively cheap and safe, general advice is that there is not much to be gained from taking extra vitamin C for colds.

Zinc

Two systematic reviews have found limited evidence that zinc gluconate or acetate lozenges may reduce continuing symptoms at 7 days compared with placebo.

Therefore, it is generally not recommended that people take zinc supplements for colds.

Treatment of influenza

- Rest, preferably by staying in bed.
- Try to get plenty of sleep.
- Drink as much as possible, as large amounts of fluid are lost during a fever
- Avoid smoking.
- Treat with over-the-counter antipyretics and other medications as symptoms require.
- Consult a doctor if the symptoms have not gone after a week, or sooner if symptoms worsen.

Respiratory tract condition

Cough

clinical pharmacy
forth stage

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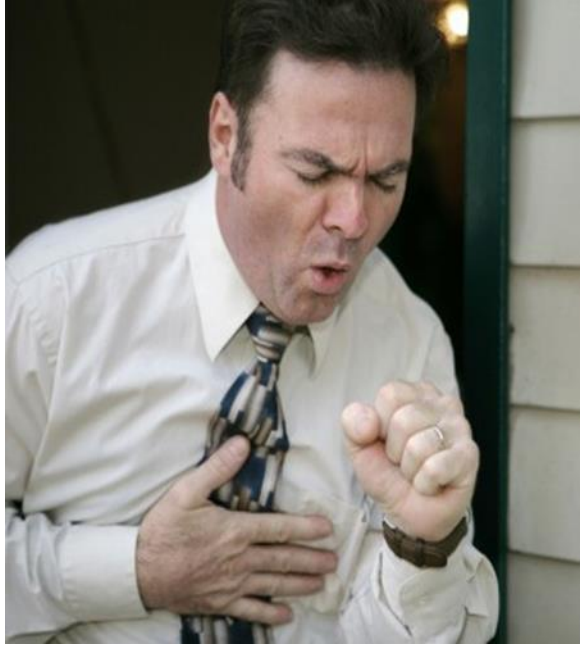
Content



- Introduction
- Types of cough
- Patient assessment
- Management
- Review and questionnaire for patients with cough
- Drug safety in pregnancy
- Task

Objectives

- Describe the cough as a respiratory disease
- Distinguish between different types of cough
- Describe the most important question required during patient assessment.
- Examine the relationship between cough and underlying medical conditions (e.g., lung disease, heart failure, medications).
- Assess the effectiveness of various cough treatments, such as over-the-counter medications, prescription drugs, and non-pharmacological interventions.
- Design a treatment plan for a patient with a persistent cough, incorporating both pharmacological and non-pharmacological approaches.

- *Cough:* is a protective reflex action caused when the airway is being irritated or obstructed. Its purpose is to clear the airway. Cough is a non-specific symptom that can be linked to over 100 conditions.

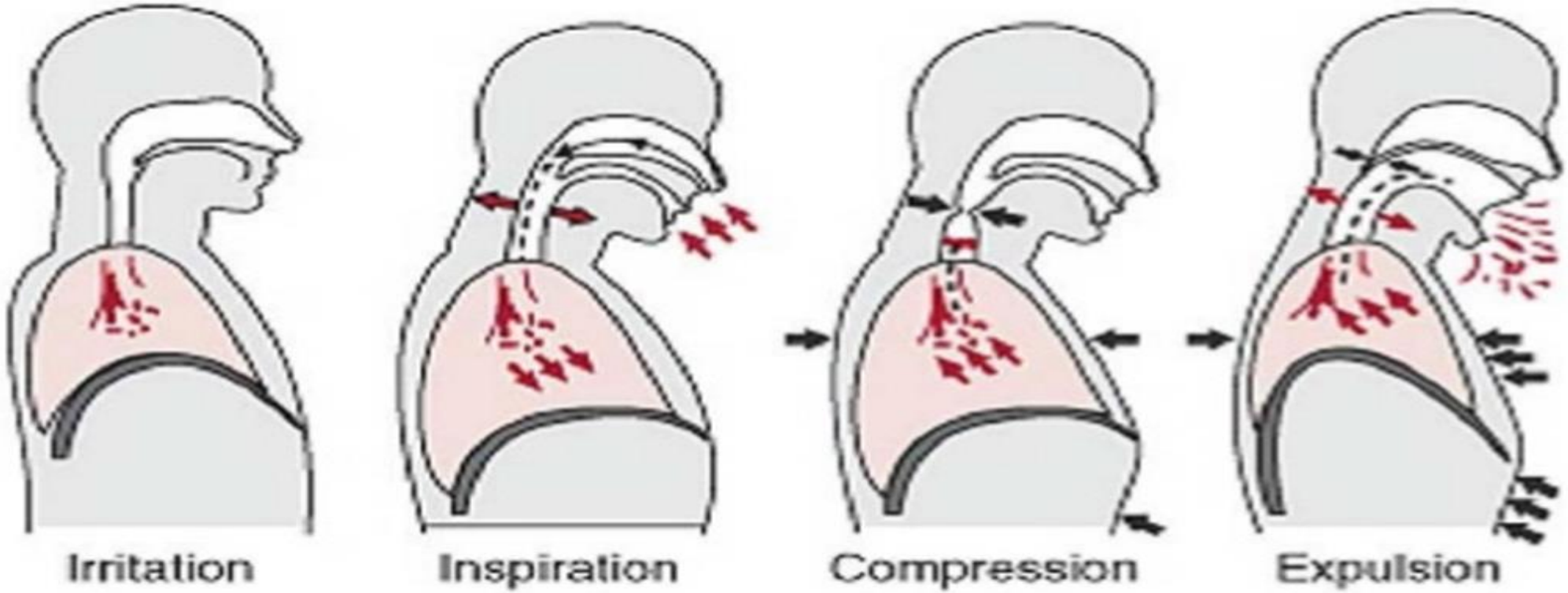
- Types of cough:

1- Productive (wet, chesty) cough: retention of secretion which could impair the ventilation(infection, color)

2- Nonproductive (dry) cough: no sputum, no physiologic purpose, viral and allergy.

3- Chesty-Nonproductive: feeling of sputum but with no production----- congestion -------- productive----chronic

Cough phases



Patient Assessment

1-Duration: self-limiting, longer than 2 weeks

2-Nature of cough: whether dry or wet ----- the color.

3- Associated Symptoms:

A-Fever, night sweats, weight loss, and haemoptysis: may indicate TB (tuberculosis)

B-A recurrent night-time cough especially in children with or without wheezing may indicate Asthma ------ referral (Especially if there is a family history of eczema, asthma, hay fever …)

- Night cough in children: common in association with a cold but in the absence of cold symptoms could indicate asthma. (Symptoms of cold include: sore throat, Runny / congested (or blocked) nose…).

C-Cough with frothy sputum; and breathlessness (especially in bed during the night) may indicate heart failure ------- referral ---history of C.V. disease.

D-Postnasal Drip: nasal discharge that flows behind the nose and into the throat ---sinusitis ---- referral

E-Chest pain, shortness of breath (SOB), wheezing, Whooping ---- referral

F-Croup: occurs in infants(harsh, barking, and paroxysmal (occurring in bouts), difficulties in breathing and stridor (noisy inspiration) -------- referral.

Note /usually develops a day or so after the onset of cold-like symptoms.

G- Coughing during the recumbent (supine, lying down), with heartburn, may indicate Gastroesophageal reflux disease(GERD) which may be improved by antacid or histamine-2 receptor antagonists(H2RA)

H-Smoking: refer the patient to a primary care provider; should not be self-treated with a cough suppressant and/or expectorant.

(smokers are more prone to chronic recurrent cough ----- develops into chronic bronchitis or emphysema)

A change like a smoker's cough (e.g. more productive or frequent, or a different sound) -------malignancy ---------- referral.

4- Medication :

A- (failed medication) -----referral

B-Effective product for similar previous cough: patient's satisfaction or dissatisfaction with specific products i.e. patient's preferability

C-Drug-induced cough: e.g.:

1-Angiotensin-converting enzyme (ACE) inhibitors (e.g. captopril, Lisinopril, Enalapril …) 10% of patients (especially women), nonproductive, occurs within the first few months of therapy ------- refer and suggest the alternative: Angiotensin –II receptor antagonists (valsartan, losartan).

2-The antiarrhythmic agent **amiodarone.**

Management

Non-drug measures:

*Demulcents : candies or other lozenges (as honey and lemon, or glycerol) : treat both productive and non-productive coughs , cheap, harmless, placebo, safe to pregnant but not in children under 3 years--- chocking.

* increase fluid intake to about 2 Litters / day

- **Non-prescription medications:**

A-Antitussive (cough suppressants): Codeine, Pholcodine, and dextromethorphan are used for dry cough.

- dextromethorphan and Pholcodeine have a lower risk of constipation and dependence developing.
- Pholcodeine and codeine: cause drowsiness whereas dextromethorphan is non-sedating

1-Codiene: ----- cough mixtures

e.g. Tussiram® syrup, Pulmocodin® syrup, tussivan ® syrup

S/Es: even at OTC doses codeine can cause constipation and at high doses can cause respiratory depression --- avoided in asthma.

- However, in practice, this is very rarely observed and does not preclude the use of cough suppressants in asthmatic patients
- (Note: Codeine is well known as a drug of abuse and sales must be refused because of knowledge or likelihood of abuse) .

2-Dextromethorphan (Sedilar® tablet, drop)

non-sedating and has fewer side effects.

3-Diphenhydramine (Allermine®):

one of the sedating antihistamines.

- The max adult dose is 150 mg daily

- The max 6-12 years old is 75 mg daily

- The max 2-6 years old is 37.5 mg daily

B-Expectorants and Mucolytics: used for **wet cough**

1-Glyceryl guaiacolate (Guaifenesin): acts by increasing bronchial secretions Which is the only FDA approved OTC expectorant.

2-Bromohexine (Solvodin® syrup, Bisolvon ®syrup, and tablet): Mucolytics drugs, used for wet cough by breaking down the chemical structure of mucus molecules.

Adult dose: one tablet or one Tablespoonful 3-4 times daily.

C-Additional Constituents:

1-Theophylline: a bronchodilator, it is best avoided because patients requiring medication to help with shortness of breath (SOB) or wheezing are best referred, to problems associated with theophylline, the availability of safer alternative treatment.

2-Sympathomimetics (e.g. Pseudoephedrine and Phenylphrine): bronchodilator and decongestant actions.

- *They may be useful if the patient has a blocked nose as well as cough*, but have many SE: increase the BP, stimulate the heart, and alter the diabetic control therefore they are not recommended for patients with :

Coronary artery diseases (Angina, MI, ….), Hypertension, Diabetes mellitus, and Hyperthyroidism .

3-Sedating Antihistamine: like Diphenhydramine, and chlorpheniramine,….,(combination with expectorant is illogical), effective especially if the dry cough is disturbing sleep.

- S/Es: sedation and drowsiness and anticholinergic S/Es (i.e. dry mouth, urinary retention, constipation, …..).
- They are not recommended (or used with caution) for patients with:
- Glaucoma or prostate hypertrophy.
- Note: Non-sedating antihistamines (e.g.loratadine) are less effective for cough

Further reading

1-Placebo effects of cough preparations :

Antitussive probably have a limited role in acute non-productive , consider S/E profile and abuse tendency rather than clinical efficacy .

most products used to treat productive cough are probably no more effective than placebos.

2-Diabetic patient and the sugar contents of cough medicines:

(sugar-free products are available , children dental health)

3-After therapy is stopped, an ACE inhibitor-induced cough typically takes up to four weeks to resolve

4- Drugs safe in pregnancy:

- Antihistamine :, Diphenhydramine, loratidine,: category B
- Cetirizine, fexofenadine, chlorpheniramine, category C
- Pseudoephedrine and phenylephrine should be avoided during the first trimester due to the associated risk of defects.
- dextromethorphan: Many studies suggest that there is no association between dextromethorphan use and an increased risk of birth defects (category C).
- Guaifenesin: Its use appears to be safe during pregnancy, except the first trimester.
- Codeine: category C