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Dermatology

The skin is the largest organ of the body. It has a complex structure and performs many important functions. These include protecting underlying tissues from external injury and overexposure to ultraviolet light, barring entry to microorganisms and harmful chemicals, acting as a sensory organ for pressure, touch, temperature, pain and vibration, and maintaining the homeostatic balance of body temperature.

It has been reported that dermatological disorders account for up to 15% of the workload of UK family doctors, with similar findings reported from community pharmacy. It is therefore important that community pharmacists are able to differentiate between common dermatological conditions that can be managed appropriately without referral to a doctor and those that require further investigation or treatment with a prescription-only medicine.

General overview of skin anatomy:

The epidermis:

Principally the skin consists of two parts, the outer and thinner layer called the epidermis and an inner, thicker layer named the dermis. Figure1-1 The epidermis is the major protective layer of the skin and has four distinct layers when viewed under the microscope. The basal layer actively undergoes cell division, forcing new cells to move up through the epidermis and form the outer keratinised horny layer. This process is continual and takes approximately 35 days.

The dermis:

The majority of the dermis is made of connective tissue; collagen for strength, and elastic fibres to allow stretch. It provides support to the epidermis as well as its blood and nerve supply.

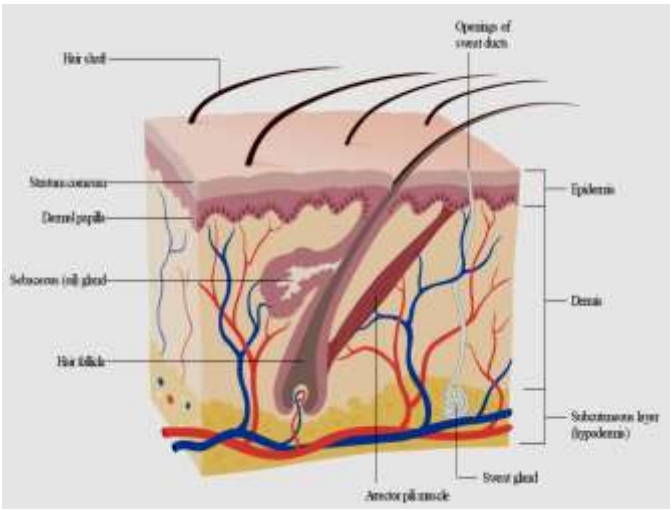


Fig 1-1The epidermis, dermis and associated structures

The hair: Each hair consists of a shaft, the visible part of the hair, and a root. Surrounding the root is the hair follicle, the base of which is enlarged into a bulb structure. The primary function of hair is one of protection.

Sebaceous glands

Sebaceous glands are found in large numbers on the face, chest and upper back. Their primary role is to produce sebum, which keeps hair supple and the skin soft.

Sweat glands: These are the most numerous and important of the skin glands and are classed as apocrine or eccrine. Eccrine glands produce a transparent watery liquid (sweat) and are located all over the body and play a role in elimination of waste products and maintaining a constant core temperature. Apocrine sweat glands are mainly located in the axilla and begin to function at puberty and have no known biological function.

History taking:

Unlike internal medicine, the majority of dermatological complaints presenting in community pharmacy can be seen. This affords the community pharmacist an excellent opportunity to base his or her differential diagnosis not only on questioning but also on physical examination. General questions that should be considered when dealing with dermatological conditions are listed in Table 8.1. Terminology describing skin lesions can be confusing and the more common terms used to describe their appearance are shown in Table 8.2.

Table 8.2
Common terms used to describe skin lesions

Term	Description
Macule	A flat lesion which is less than 1 cm in diameter
Patch	A flat lesion which is greater than 1 cm in diameter
Papule	A raised, solid lesion less than 1 cm in diameter
Nodule	A raised, solid lesion greater than 1 cm in diameter
Vesicle	A clear, fluid-filled lesion lasting a few days which is less than 1 cm in diameter
Bulla	A clear, fluid-filled lesion lasting a few days which is greater than 1 cm in diameter
Pustule	A pus-filled lesion lasting a few days which is less than 1 cm in diameter
Comedone	A papule which is 'plugged' with keratin and sebum
Erythema	Redness due to dilated blood vessels that blanch when pressed
Excoriation	Localised damage to the skin due to scratching
Lichenification	Thickening of the epidermis with increased skin markings due to scratching

Table 8.1
Questions to consider when taking a dermatological history

Question	Relevance
Where did the problem first appear?	Certain skin problems start in one particular location before spreading to other parts of the body, e.g., impetigo usually starts on the face before spreading to the limbs Patients might need prompting to tell you where the problem started, as they are likely to want help for the most obvious or large skin lesion but neglect to tell you about smaller lesions that appeared first
Are there any other symptoms?	Many skin rashes are associated with itch and/or pain Mild itch is associated with many skin conditions including psoriasis and medicine eruptions Severe itch is associated with conditions such as scabies and atopic and contact dermatitis
Occupational history (relevant to adults only)	This is particularly pertinent for contact dermatitis, e.g., do symptoms improve when away from work?
General medical history	Many skin signs can be the first marker of internal disease, e.g., diabetes can manifest with pruritus; fungal or bacterial infection and thyroid disease can present with hair loss and pruritus
Travel	More people are taking holidays to non-Western countries and therefore have the potential to contract tropical diseases
Family and household contact history	Infections such as scabies can infect relatives and others with whom the patient is in close contact
The patient's thoughts on the cause of the problem	Ask for the patient's opinion. This might help with the diagnosis, or alternatively shed light on anxieties and theories as to the cause of the condition

Physical examination: A more accurate differential diagnosis will be made if the pharmacist actually sees the person's athlete's foot or 'rash' on the back. Providing adequate privacy can be obtained, there is no reason why the majority of skin complaints cannot be inspected. If examinations are performed, clearly explain the procedure you want to perform and gain the person's consent. Examinations should ideally be conducted in consultation rooms. It is worth remembering that many patients will be embarrassed by the appearance of skin conditions and the pharmacist needs to demonstrate empathy during the consultation. When performing an examination of the skin, a number of things should be looked for (Table 8.3).

Table 8.3
Things to consider when performing a dermatological examination

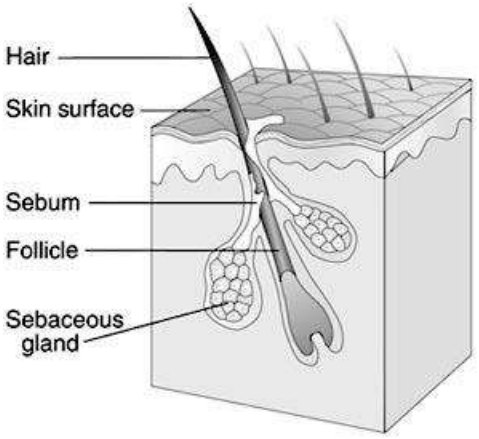
Lesions	Relevance
Temperature	Use the backs of your fingers to make the assessment. This should enable you to identify generalised warmth or coolness of the skin and note the temperature of any red areas, e.g., generalised warmth can indicate infection, whereas localised warmth might indicate inflammation or cellulitis
Lesions	**Distribution** – many skin diseases have a 'typical' or 'classic' distribution Symmetrical – e.g., acne and psoriasis Asymmetrical – e.g., contact dermatitis Unilateral – e.g., shingles Localised – e.g., nappy rash **Arrangement** Discrete (with healthy skin in between) – e.g., psoriasis Coalescing (merging together) – e.g., eczema Grouped – e.g., insect bites **Feel of lesions** Smooth – e.g., urticaria Rough – e.g., actinic keratosis
Recent trauma	Is there any sign that individual lesions have developed on a site of trauma or injury such as a scratch? This is seen in a number of conditions such as psoriasis and viral warts

Acne

Background:

1-Acne vulgaris is a common condition in young people. It is not usually serious and **resolves in most patients by the age of 25.** However, it can have **a significant psychological impact** as it affects young people at a stage in their lives .when they are especially sensitive about their appearance

2-The pilosebaceous units in the dermis of the skin consist of a hair follicle and associated sebaceous glands. These glands secrete sebum– a mixture of fats and waxes –to protect the skin and hair by retarding water loss and forming a barrier against external agents



3-Peak incidence of acne is 14–17 years in females and 16–19 years in males. The condition normally resolves in the majority of patients within 10 years of onset

Etiology:

Acne is the result of a combination of several factors. The main processes involved are as follows:

1-**The hormonal changes** that occur during puberty, especially the production of **androgens**, are thought to be involved in the causation of acne. Increased keratin and sebum production during adolescence lead to blockages of the follicles and the formation of **microcomedones** .

2-A microcomedone can develop into a non-inflammatory lesion (comedone) (**comedone:** a mass of sebum and keratin), which may be open (**blackhead**) (as the keratinous material darkens in contact with the air or closed (**whitehead**), or into an inflammatory lesion [**papule** (raised reddened area on the skin), **pustule** (raised reddened area filled with pus) or **nodule**)]

3-Excess sebum encourages the growth of bacteria, particularly ***Propionibacterium acnes***, which are involved in the development of inflammatory lesions. Acne can thus be non-inflammatory or inflammatory in nature .

Patient assessment with acne

A- **Age**

1-Acne is extremely ***rare in young children and babies*** and any such cases should be referred to the Dr. since an ***androgen secreting tumor may be responsible***.

2-For patients in whom **acne begins later than the teenage years**, **other causes** should be considered, including drug therapy and occupational factors (oils and greases used at work).

B-Severity:

Only mild acne can be managed by the pharmacist using OTC products.moderate and severe acne should be refered.

1-Mild acne: Patients suffering from mild acne characteristically have predominately open and closed comedones with few inflammatory . Mild acne is therefore o the face (papulopustular) lesions mainly confined characterized by the presence of a few to several papules and pustules, but no nodules.

2-Moderate acne: A patient with moderate acne has many inflammatory lesions **that are not confined to the face**. lesion are often painful and there is **a possibility of mild scaring**.

3-Severe acne: A patient with severe acne has all the characteristics of moderate acne plus the development of **cysts**. Lesions are often widespread involving the upper back and chest Scarring will usually result.

When to refer
1-**Moderate** or **severe** acne . 2-**Failed** medications . 3-Acne beginning or persisting **outside the normal age range** for the condition (teenage years and early 20s) . 4-Suspected **drug-induced acne** . 5-Suspected **occupational causes** . 6-Suspected **rosacea**

C-Affected areas

In acne, affected areas may include the face, neck, center of the chest, upper back and shoulders, i.e. all areas with large numbers of sebaceous glands.

Rosacea is a skin condition that is sometimes confused with acne . It is a common chronic inflammatory disorder of the **facial pilosebaceous** units, coupled with an increased reactivity of capillaries leading to flushing and telangiectasia

[rosacea has characteristic features of reddening (**flushing**), papules and pustules] It is normally seen in patients over 40 years of age and is more common in women than in men. comedones are not present, Patients with suspected ***rosacea*** required referral.

D-Occupation:

Acne is commonly associated **with long term contact oils** and required referral

E-Medication

1-Acne of long duration where several products had been correctly used **without** referral **success required**

2-A number of medicines can produce acne-like lesions. Steroids (oral or topical) are commonly implicated. Other medicines associated include lithium, oral contraceptives , phenytoin, azathioprine and rifampicin and required referral.

Treatment timescale:

A patient with mild acne, which has not responded to treatment **within 8 weeks**, should be referred to the doctor.

Management:

Nondrug therapy:

Washing the skin with a mild soap and rinsed off with water before applying *benzoyl peroxide* can help by reducing the amount of sebum on the skin . There is no evidence to link diet with acne.

Drug therapy:

A-Benzyl peroxide (2.5%, 5%, and 10% gels, lotion, cream ...): which is the first line OTC treatment of acne.

Benzoyl peroxide has both antibacterial and anticomedogenic actions and is the first-line OTC treatment for inflammatory and noninflammatory acne.

Anticomedogenic action is low and has the greatest effect at higher strengths. It has a keratolytic action, helping the skin to peel. Regular application can result in improvement of mild acne.

Administration guidelines for Benzyl peroxide

1-At first, **benzoyl peroxide** is very likely to produce **reddening** and **soreness** of the **skin**, and patients should be warned of this (see ʻPractical pointsʼ below). Treatment should start with a 2.5 or 5.0% product, moving gradually to the 10.0% strength if needed .

2-**Gels can be helpful for people with oily skin** and **creams for those with dry skin** .

3-*Benzoyl peroxide* **prevents new lesions forming** rather than shrinking existing ones. Therefore it needs to be **applied to the whole of the affected area, not just to individual comedones**, and is best applied to skin following washing .

5-During the **first few days** of use, the **skin is likely to redden** and may feel **slightly sore**. Stinging, drying and peeling are likely. Warning should be given that such an irritant effect is likely to occur; otherwise treatment may be abandoned مهجور inappropriately

6-One approach to minimize reddening and skin soreness is to begin with the lowest strength preparation and to apply the cream, lotion or gel sparinglyباعتدال and infrequently during the first week of treatment (**application once daily or on alternate days could be tried for a week and then frequency of use increased to twice daily**. After 2 or 3 weeks, a higher strength preparation may be introduced. If irritant effects do not improve after 1 week or are severe, use of the product should be discontinued).

7-Sensitisation: Occasionally, **sensitization** to *benzoyl peroxide* may occur. The skin becomes reddened, inflamed and sore, and treatment should be discontinued .

8-Bleaching: Warning should be given that **benzoyl peroxide can bleach clothing and bedding** (If it is applied at night, white sheets and pillowcases are best used and patients can be advised to wear an old T-shirt or shirt to minimize damage to good clothes. Contact between *benzoyl peroxide* and the eyes, mouth and other mucous membranes should be avoided).

9-Antibacterials: Skin washes and soaps containing antiseptic agents such as chlorhexidine are available. Such products may be useful in acne by degreasing the skin and reducing the skin flora. There is limited evidence of effectiveness.

- **Adapalene (Deferin® 0.1 gel)**

1-Retinoids are highly effective in the treatment of acne. Thus, the retinoid stimulate.epithelial cell turnover and aid in unclogging blocked pores family are highly active peelers. Available topical retinoids include tretinoin, considered the drug of first choice. Adapalene is considered the drug of first choice because it has similar efficacy and a lower incidence of adverse effects . Differin Gel 0.1% is the first in a class of retinoids to be made available OTC for the treatment of acne vulgaris in patients 12 years of age and older.
2-The drug should be applied once daily in a thin layer on the affected areas of skin. However, if there is no improvement in 3 months of daily use, patients should stop using the product and consult a physician

Practical points

Diet

There is **no evidence to link diet with acne**, despite a common belief that chocolate and fatty foods cause acne or make it worse .

Continuous treatment

Acne is slowly responding condition to treatment and a period of **up to 6 months may be required for maximum benefit**. It is generally agreed that keratolytics such as *benzoyl peroxide* require a minimum of 6–8 weeks′ treatment for benefit to be shown. Patients should therefore be encouraged to persevere with treatment, whether with OTC or prescription products, and told not to feel discouraged if results are not immediate. The patient also needs to understand that acne is a chronic condition and continuous treatment is needed to keep the problem under control.

Skin hygiene

Acne is not caused by poor hygiene or failure to wash the skin sufficiently often. Regular washing of the skin with soap and warm water or with an antibacterial soap or skin wash can be helpful as it degreases the skin and reduces the number of bacteria present .

Topical hydrocortisone and acne

The use of *topical hydrocortisone* is contraindicated in acne because steroids can potentiate the effects of androgenic hormones on the sebaceous glands, hence making acne worse .

Make-up

Heavy, greasy make-up can only exacerbate acne. If make-up is to be worn, water-based rather than oily foundations are best, and they should be removed thoroughly at the end of the day

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Dandruff and seborrhoeic dermatitis

A-Dandruff (pityriasis capitis)

1-Dandruff is a **chronic relapsing condition of the scalp** which responds to Treatment, but return when the treatment is stopped. **increased cell turnover rate (twice the rate of those without the condition)** is responsible for dandruff but the reason why cell turnover increases is unknown. The yeast *Malassezia ovale* (previously known as *Pityrosporum ovale)*may play a role in the pathogenesis of dandruff.

evidence to support a role of *Malassezia* in the aetiology of dandruff is the positive effect that antifungal therapy has on clearing dandruff,anddandruff improves in the summer months (fungal organisms thrive in warm and moist environments that exist on the scalp due to the wearing of hats and caps).

2-Dandruff is **rare in young children**, but incidence increases rapidly with age,. Both **declining gradually thereafter** and **peaking in the second decade of life**. Sexes are affected equally are affected equally. It has been estimated to affect 1–3% of the population

Patient Assessment With Dandruff:

A-Appearance and location:

Appearance and location will help to distinguish dandruff from psoriasis and seborrheic dermatitis (Table 1-1).

Seborrhoeic dermatitis results from accelerated epidermal proliferation **and sebaceous gland activity** on the scalp, face and trunk .

Psoriasis is an inflammatory clinical condition **with plaques and thick scales**

	Dandruff	**Seborrheic Dermatitis**	**Psoriasis**
Location .	Scalp	Areas where there is greatest sebaceous gland activity e.g., scalp, face, and chest	Can affect the Scalp, but knees, and elbows arecommonly involved. The **face is rarely affected**
Appearance	Thin, white or grayish scales	**Yellowish greasy scales** usually with some reddening	**Silvery –white scales** associated with red **patchy plaques** and inflammation

B-Severity:

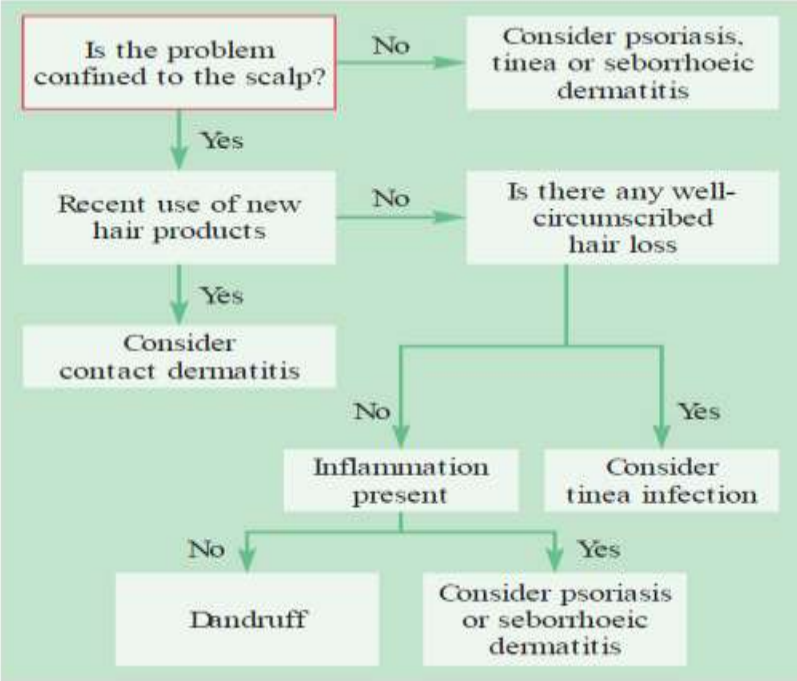
Dandruff is generally a mild condition. However, the itching scalp may lead to scratching, which may break the skin, causing soreness and the possibility of infection. If the scalp is very sore or there are signs of infection (crusting or . weeping), referral should be indicated

C-Previous history:

Dandruff is a chronic relapsing condition and there is usually a seasonal variation in symptoms which generally improve in summer.

D-Medication:

Various treatments may already have been tried. It is important to identify what has been tried and how it was used. If an appropriate treatment has been correctly used with no improvement, referral should be considered .



Arriving at a differential diagnosis:

it is important to differentiate dandruff from other scalp conditions.See algorithm

Algorithm differential diagnosis of dandruff.

Treatment timescale:

Patient should consult a doctor if the condition does not improve or if it worsens after 1-2 weeks of treatment with nonprescription medications .

Management:

Note: All the treatment need to be left on **the scalp for 3-5 minutes** for full effect

1-Ketoconazole 2% shampoo (Ketonaz®):

Which is used to treat acute flare-ups of dandruff or as a prophylaxis:

To treat acute cases: the hair should be washed thoroughly and then leaving the shampoo for 3-5 minutes before rinsing it off. This should be repeated every 3-days (i.e. twice weekly) for 2-4 weeks.

If used as a prophylaxis: the shampoo should be used once every one or two weeks

. **Note :it can be used by all age groups including pregnant women**

2-Selenium sulfide 2.5% shampoo (Selsun®):

Twice–weekly use for the first 2 weeks followed by weekly use for the next 2 weeks Then it can be used as needed.

Note:
A-It can be used for patient above 5 years. Manufacturers state to avoid in pregnancy and while breastfeeding due to lack of safety data .
B-The hair and scalp should be rinsed thoroughly after using it to prevent discoloration of the hair. And should not be used within 48 hours after coloring or perming the hair. (Hair should not be dyed or permed for at least 2 days **before or after** using the shampoo)

C-It also has an unpleasant odor. Gold, silver, and other metallic jewels should be removed before application to prevent discoloration.

3- Zinc pyrithione(Head and shoulder®): like selenium, exhibits antifungal properties but also reduces cell turnover rates. It is believed that one or both of these properties confers its effectiveness in treating dandruff.

4-Other products containing **(**, **salicylic acid**, **coal tar, ...)** are also available.

Practical Points

1-Patients need to understand that the treatment will not cure their dandruff permanently and that it will be sensible to use the treatment on a less frequent basis to prevent their dandruff from coming back

2-It is the scalp that needs to be treated rather than the hair. The treatment should be applied to the scalp and massaged gently

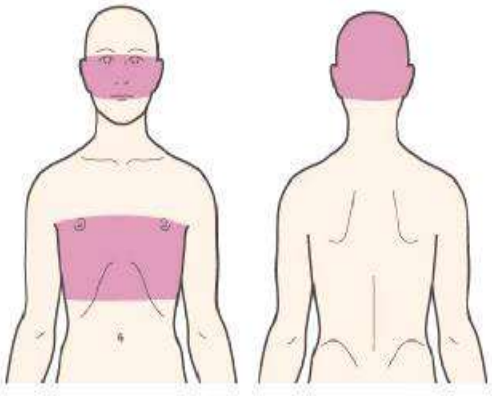
3-It is generally agreed that frequent washing (at least three times a week) is an important part of managing dandruff. Between applications of their treatment the patient can continue to use their normal shampoo.
4-Gel and hairspray can still be used and will not adversely affect treatment for dandruff.

B-Seborrheic dermatitis

1-Seborrheic dermatitis (Seborrhea) is the result of accelerated epidermal and sebaceous gland activity on the scalp, face, and trunk proliferation
2-Seborrheic dermatitis is common in infant called cradle cap (see below), and is relatively rare in children, and again the incidence peaking between 18-40 years . The adult form is more common in men than in women, and also more common in people with underlying neurological illness, for example Parkinson's disease

2-As in dandruff , growth of *Malassezia ovale* may be a causative (a theory supported by the fact that Ketoconazole improves the condition)

3- Typical distribution of seborrhoeic dermatitis is shown in Figure(1-1)



Figure(1-1)distribution of seborrhoeic dermatitis

Patient Assessment with Seborrheic Dermatitis:

The differentiation between seborrheic dermatitis, dandruff, and psoriasis had been discussed in dandruff (see dandruff).

In addition the following points may help in diagnosis of seborrheic dermatitis

1-Other symptoms: eyelid and ear problems are associated with Seborrheic dermatitis.

2-Physical signs: if you run your fingers through the hair of someone with seborrheic dermatitis little is felt. In psoriasis lumps are felt.

Management:

Treatment options for seborrhoeic dermatitis are the same as dandruff (Ketoconazole shampoo can be used for seborrheic dermatitis. Whilst shampooing,). (the lather can be applied to other affected areas and left before rinsing.

C-Cradle Cap:

It is a form of seborrheic dermatitis of the scalp. It usually appears within the **first 3 months of life and resolve spontaneously within a year**. This form of seborrheic dermatitis cause scaling and crusting and its appearance may be worrying to the parents, **but it not usually serious**.

Treatment:

1-Simple measures, such as the daily use of a baby shampoo followed by gentle . brushing, are usually only required to improve the condition

2-If this fails, the scales can be removed by applying olive oil to the scalp overnight, followed by using a baby shampoo the next morning

3-If symptoms persist a medicated shampoo containing coal tar or keratolytic–tar combination (e.g., Capasal®) could be tried. If this fails, the child should be referred to the doctor.

4-Ketoconazole has been shown to be effective and safe for the treatment of cradle cap but it should be reserved for serious cases and preferably used under medical supervision

College of Pharmacy
Fourth Year. Clinical Pharmacy 2018-19

Central nervous system conditions Lec:3

Insomnia

Background:

The length of sleep people need varies but typically people aged between 20 and 45 **require 7 to 8 hours per day**. Sleep requirements also **decrease with increasing age** and people over 70 commonly have 6 hours sleep per day [(1)].

Insomnia has three features:
1-Difficulty in ***initiating*** sleep; 2-difficulty in ***maintaining*** sleep; or 3-***waking*** up too early. In addition a fourth characteristic may be added: sleep that is perceived to be **nonrestorative** (i.e. not restore the body from the day's exertions) or of poor quality [(2)]. Insomnia will affects the next day alertness and the tiredness can lead to poor performance at work [(1)].

Insomnia is classified by its duration; **transient** (lasting less than 1 week) [(3)], **short-term** (up to 3 weeks) or **chronic** (greater than 3 weeks) [(4)]. Transient insomnia is often caused by a change of routine, for example, time zone changes, excessive noise, sleeping in a new environment (e.g. hotel) or extremes of temperature. Short-term insomnia is usually related to acute stress such as sitting exams, bereavement , loss of فاجعة job, forthcoming marriage or house move [(1)].

The pharmacist can manage most patients with transient or short-term insomnia, however cases of **chronic insomnia are best referred** as there is usually an underlying cause [(1)]. The key to restoring appropriate sleep pattern is the advice on **sleep hygiene** (see below).OTC product can help during **transition period** and can also be useful in periodic and transient sleep problems [(4)].
Insomnia can arise from many different causes (Fig. 6-2) [(4)].

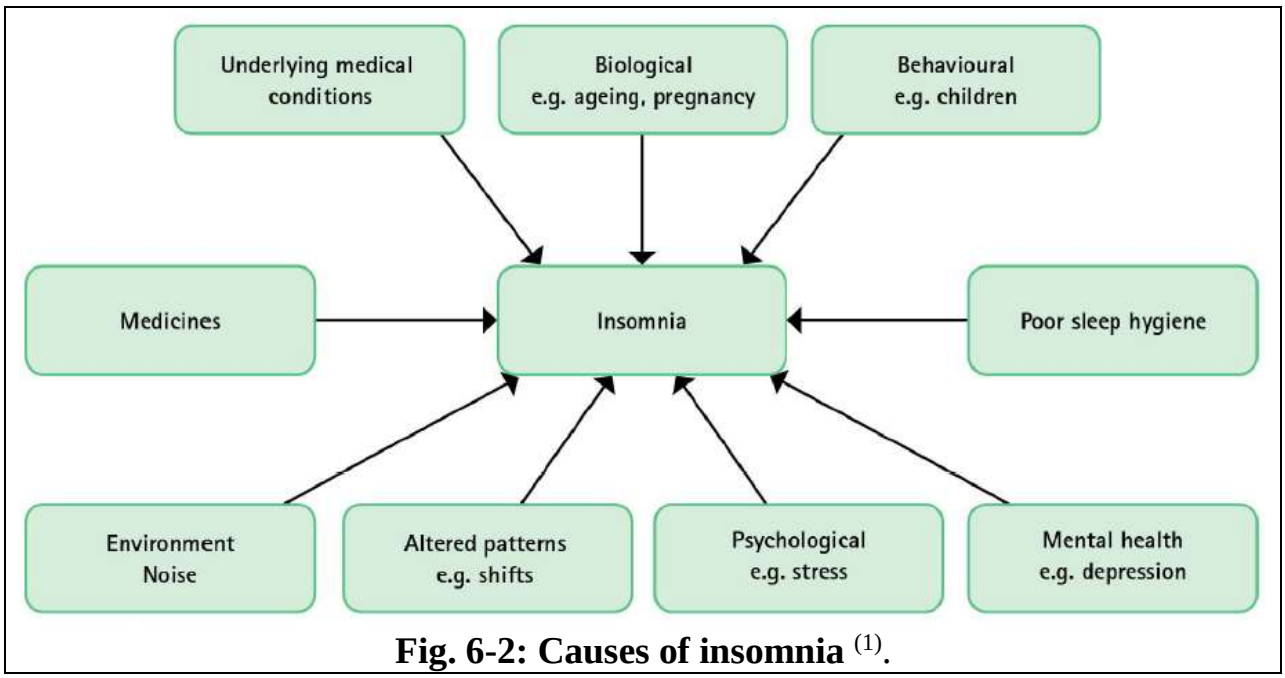


Fig. 6-2: Causes of insomnia [(1)].

Patient assessment with insomnia:

A-Age:

In elderly people the total **duration of sleep is shorter**. **Nocturnal waking** is more likely because sleep is generally more **shallow**. However, people may still feel that they need more sleep and wish to take a medicine to help them sleep [4]. Elderly people may **nap during the day and this reduces their sleep** need at night even further [1].
Patient **under the age of 16 years** required referral [4].

B-Duration:

Chronic insomnia (longer than 3 weeks) required referral [4].

C-Recent travel:

Time zone changes will affect the person normal sleep pattern and **can take a number of days to re- establish normality** [1].

D-Symptoms:

It is important to differentiate between the different types of sleep problems:

Difficulty in falling asleep.
Waking during the night.
Early morning waking.
Poor sleep.
Snoring.

Depression is an important cause of insomnia. **Early morning waking is a classic symptom of depression (**Here the patient may describe no problems in getting to sleep but waking in the early hours and not being able to get back to sleep) [4]. The **pharmacist should look to other symptoms of depression** (fatigue, loss of interest and appetite, feeling of guilt, difficulty in concentration and constipation) [1].
Patient with **suspected depression** should be referred [4].

Anxiety can also cause insomnia. This usually associated with ***difficulty in getting off to sleep*** because of an **overactive mind**. This is may be experienced by many people, particularly before an **important occasion**, for example **an exam**. If, however this occurs as a more regular pattern, referral is required [4].

When to refer
-Suspected depression [4].
-Chronic problem (longer than 3 weeks' duration) [4].
-Children under 16 years [4].
-Snoring, apnea, restless legs [4].
-Associated physical conditions [4].
-Suspected alcohol dependency [4].
-Insomnia for which no cause can be ascertained [1].

E-Contributing factors [4]:

1-***Shift work*** with changing shifts is a classic cause of sleep problems. Those who work away also may have insomnia.
2-***life change***s, for example (loss of job, moving house, loss or separation of wife (or husband) and menopause.
3-Heavy continuous ***alcohol*** consumption.
4-Other ***stressful events*** like exam, job interview, celebration...

5-***Obesity*** can be associated with sleep apnea and snoring, both of which can interrupt sleeping.

D-Medications and medical problems:

1-Some drug can cause or contribute to insomnia (table 6-4) [4].

Table 6-4: Medication that may cause insomnia [1]	
Stimulants	Caffeine, theophylline, sympathomimetics amines (e.g., pseudoephedrine), MAOIs –especially in early treatment)
Antiepileptics	Carbamazepine, phenytoin
Alcohol	Low to moderate amounts can promote sleep but when taken in excess or over a long period, it can disturb sleep
Beta-blockers	Can cause nightmares, especially propranolol. Limit by swapping to a beta-blocker that does not readily cross the blood-brain barrier
SSRIs	Especially fluoxetine
Diuretics	Ensure doses not taken after midday to stop the need to urinate at night
Griseofulvin	
MAOIs, monoamine oxidase inhibitors; SSRIs, selective serotonin reuptake inhibitors.	

2-Medical problems can be associated with insomnia e.g.:
Through pain: Angina, arthritis, cancer and Gastro-esophageal reflux disease (GERD).
Through breathing difficulties :(heart failure, COPD, and asthma).
In addition other medical condition such hyperthyroidism (night sweats), menopausal symptoms (hot flushes) and Parkinson's disease [4]. (In both cases the Dr. should be consulted and the treatment options discussed /suggested) [1].

Treatment timescale**:**

Improvement should be obtained within **days**: refer **after week** if the problem is not resolved [1].

Management:

A-non-pharmacological advices:

1-Sleep hygiene: See the above tables 6-5 [1, 4]:

2-Bathing
A ***warm bath*** 1–2 h (not immediately) before bedtime can help induce sleep [4].

Table 6-5: Key steps to good sleep hygiene
1-Establish a regular bedtime and waking time [4].
2-Consciously create a relaxation period before bedtime [4].
3-No meals just before bedtime [4].
4-No naps during the daytime [4].
5-No caffeine after early afternoon [4].
6-Reduce extraneous noise (use earplugs if necessary) [4].
7-Get up if you can't sleep – go back to bed when you feel 'sleepy, tired' [4].
8-Avoid alcohol [1].
9-Restrict nicotine intake immediately before bedtime [4].
10-Avoid sleeping in very warm rooms [1].
11-No strenuous mental activity at bedtime (e.g., doing a crossword in bed) [1].
12-Associate bed with sleep – try not to watch TV [1].

B-Pharmacological treatment:

A-Antihistamine: Diphenhydramine and promethazine: can be recommended for adults and children ***over 16 years*** in UK [1] (older than 12 years of age in USA) [5] .

1-They reduce sleep latency (time taken to fall asleep) and also reduce nocturnal waking [4].

2-Diphenhydramine should be taken **20-30 minutes** before bedtime [1]. The dose is 50 mg [1, 4, 5].

3-**Promethazine**: 20 or 25 mg taken **an hour** before bedtime [1].

4-Advise the patient to take the drug every night for 3 nights then skip 1 night and evaluate ability to sleep. If not improved, continue diphenhydramine for 3 more nights, and reevaluate ability to sleep without it. If symptoms persist for 10 days, the patient should seek medical evaluation." [5] **(Tolerance** to their effect can develop) [1, 4].

5-*Diphenhydramine* and *promethazine* should not be recommended for pregnant or breastfeeding women [4].

6-Summaries of practical points are listed in (tables 6-6) [4].

Table 6-6: Practical prescribing: Summary of medicines for insomnia [4].

Drug	Likely side-effects	Drug interactions of note	Patients in whom care should be experienced
Antihistamines (**Diphenhydramine** and **promethazine**)	Dry mouth, sedation	Increased sedation with alcohol, opioid analgesics, anxiolytics, hypnotics and antidepressants	Glaucoma, prostate hypertrophy.

B-Melatonin:

Melatonin is an endogenous hormone produced by the body's **pineal gland** during darkness and is thought to regulate sleep [4].

Melatonin tablets are available as an OTC product for insomnia in USA[4]. Melatonin is advocated for sleep disturbance, particularly associated with jet lag. The timing of the

dose is critical. It has to be taken at bedtime [1] (1–2 hours before bedtime) [5] after darkness has fallen on the first day of travel then again in the same way on the second, and any subsequent day, of travel. Once at the final destination it should be taken for the following few days at the same time [1].

References:

1-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 4th edition. 2017.
2-W. Steven Pray. Insomnia and Its Treatment With Nonprescription Products. *US Pharm*. 2009; 34(4)(OTC suppl):8-11.
3-American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 18th edition. 2016.
4-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 7th edition. 2014.
5-BNF-74.

5-Snoring

1-Snoring is another sleep-related problem for which pharmacists can recommend a product. Snoring disrupts the patient's sleep, **but is usually more troublesome for the spouse/bed partner, and for children** whose bedrooms are in close proximity. Snoring is more common in **males**, perhaps because they have smaller caliber airways than females [1].

2-Most snoring is unrelated to any underlying medical condition and is known as ***primary snoring***. Patients predisposed to snoring include those who are **overweight** (due to pressure on the airways from excessive neck tissue); females who are pregnant (especially in the last trimester); those with **nasal congestion** from the common cold or allergic rhinitis; those with inflammation of tonsils; and those with **certain anatomical predispositions** (e.g., abnormal facial bones, large tongue, ……) [1].

3-Patients who are able to **breathe normally through the nose do not snore**, since the mouth is closed. However, nasal obstruction forces patients to mouth breathe**. Thus, opening the nasal airways may eliminate some cases of snoring.** The use of topical or oral nasal decongestants may accomplish this objective, although the accompanying CNS stimulation often interferes with sleep [1].

4-Another viable method to stop snoring is the use of FDA-approved, **adhesive thin plastic nasal strips** [1]. These adhesive nasal strips work by opening the nostrils wider [2] (When the strip is released, it gradually opens the nasal passages)[1] and enabling the breathing through the nose rather than through the mouth [2]. (**Further reading 1and 2**)

References:

1-W. Steven Pray .Insomnia and Snoring. US Pharm. 2012;37(1):12-15.
2-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 7th edition. 2014.

Motion sickness

Background:

Motion sickness is a travel (air, sea and land) sickness characterized by **nausea** (and sometimes vomiting), **pallor**, and **cold sweats** [1, 2]. Patients may feel **relief after a**

single bout of vomiting, but in a few cases, the vomiting can be protracted and severe [3].
Motion sickness is thought to be caused by a conflict of messages to the brain, where the vomiting center receives information from the eyes, the GI tract and the vestibular system in the ear [1].
Pharmacists are often asked to recommend a travel-sickness remedy especially by parents for their children in whom the problem is most common [1]. Effective **prophylactic** treatment is available OTC [1].

Epidemiology

1-Motion sickness is more common in women than men [4].
2-It is uncommon in children under 2 years [4] (***don't usually required treatment***) [1] and **most common in children between 2 and 12**, reaching a peak at 12 years . Incidence reduces thereafter and after 21 declines significantly with age [4] (although some adults still experience the problem) [1].
3-Studies demonstrate that the person in control of a vehicle is less prone to become motion sick. Thus, the **driver or pilot is protected**, while the passengers are at higher risk [3].

Patient assessment with motion sickness:

A-Age:

The minimum age at which products designed to prevent motion sickness can be given varies, so for a family with several children careful product selection can provide **one medicine to treat all cases** [1]. (See treatment below)

B-length of time of the travel:

The duration of action of the available drugs varies, if it is a long travel , then it may be necessary to **repeat the dose** while traveling according to the dosing interval of each drug [1].(see treatment below).

C-previous history:

To know which member of the family have previous problem for whom treatment will be needed [1].

D-Medication [1]: To know:

1- Any treatment used in the past for motion sickness and their level of success or failure.
2-Other medication taken by the patient which may interact with selected OTC drugs.

Treatment:

1-Non-Pharmacological therapy:

A-General advice:

1-Children are **less likely** to feel or be sick if they **can see out of the car,** so appropriate seats can be used to elevate the seating position of small children so that they can lock outside and see still objects which may be helpful [1].

2-Keeping the line of vision fairly **straight ahead** [5].
3-For many patients, **reading** exacerbate the feeling of nausea [1]. (Not reading during the travel) [5].
4-Avoiding excess of **food** before and during the extended travel [5].
5-Staying where motion is felt the least (e.g. **front of the car**) [5] (**Planes** - sit over the wing) (**Ships** - sit in the **middle** close to the water line) [6].
6-Avoiding strong **odors** particularly from food or tobacco smoke [5].
7- Ensure **good ventilation**, for example open a window [6].

B-Acupressure wrist:

It is elasticated **wrist bands** that apply pressure to a defined points on the inside of the wrists are available. Although there is **no consistent evidence** (till now) about their effectiveness, such wrist band may be worth trying for **drivers or pregnant women** [1].

2-Pharmacological therapy:

It includes: **Antihistamines**: (meclozine, **Cinnarizine**, promethazine).
Anticholinergics: Hyoscine hydrobromide.
Summaries of medicines for travel sickness are listed in (tables 6-7 and 6-8).

3-Herbal remedy (Alternative or complementary medicine)

Ginger (Zingiber officinale)**:** Ginger has been used for many years for travel sickness. Clinical trials have produced conflicting findings in travel sickness [1].
Ginger would be worth trying for **drivers** who suffered from motion sickness and it may be worth considering for **pregnant** women for whom other antiemetics may not be used [1].

Table 6-7: Summary of medicines for travel sickness (part 1) للاطلاع

	Minimum age for use (year)	Timing of 1st dose in relation to journey	Dose interval (hour)	Dose for prevention of Motion sickness
Cinnarizine	٥	2 h before	٨	Child 5–11 years: Initially 15 mg, then 7.5 mg. Child 12–17 years: Initially 30 mg, then 15 mg. Adult: Initially 30 mg, then 15 mg [7].
Hyoscine hydrobromide	٣	20 min before	٦	Child 4–9 years: 75–150 mcg. Child 10–17 years: 150–300 mcg. Adult: 150–300 mcg [7].
Meclozine	٢	Previous evening or 1 h before	٢٤	2–12 years: 12.5 mg. Adult: 25 mg [1].
Promethazine teoclate	٥	Previous evening or 1 h before	٢٤	Child 5–9 years: 12.5 mg once daily. Child 10–17 years: 25 mg once daily. Adult: 25 mg once daily [7].

Table 6-8: Summary of medicines for travel sickness (part 2) [6]			
	Likely side effects	**Drug interactions of note**	**Patients in which care is exercised**
Cinnarizine, Meclozine, Promethazine teoclate	Dry mouth, sedation	Increased sedation with alcohol, opioid analgesics, anxiolytics, hypnotics and antidepressants	Angle-closure glaucoma, Prostate enlargement
Hyoscine hydrobromide	Dry mouth, sedation	Increased anticholinergic side effects with Tricyclic antidepressants and neuroleptics	Angle-closure glaucoma, Prostate enlargement

Note :**(Dry mouth):** many people complain of the side effect of dry mouth. This is easily overcome by **sucking a sweet,** which will stimulate saliva production [6].

References

1-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 7th edition. 2014.
2-Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press. 2010.
3-W. Steven Pray .Understanding Motion Sickness. US Pharm. 2008;33(1):14.
4-Nathan A. fasttrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press. 2008.
5-American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 18th edition. 2016.
6-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 4th edition. 2017.
7-BNF -74.

Further reading

1-Nasal strips should not be used over any wound on the nose, or if the skin is irritated or sunburned. The maximum time of use **is 12 hours daily**, and those allergic to adhesives or tape should not use them. If strips cause skin irritation, they should not be used. Pharmacists should instruct patients that mouth breathing is often a long-standing habit, **and it may take 7 to 10 nights of strip use before the patient learns to breathe through the nose again** [1].

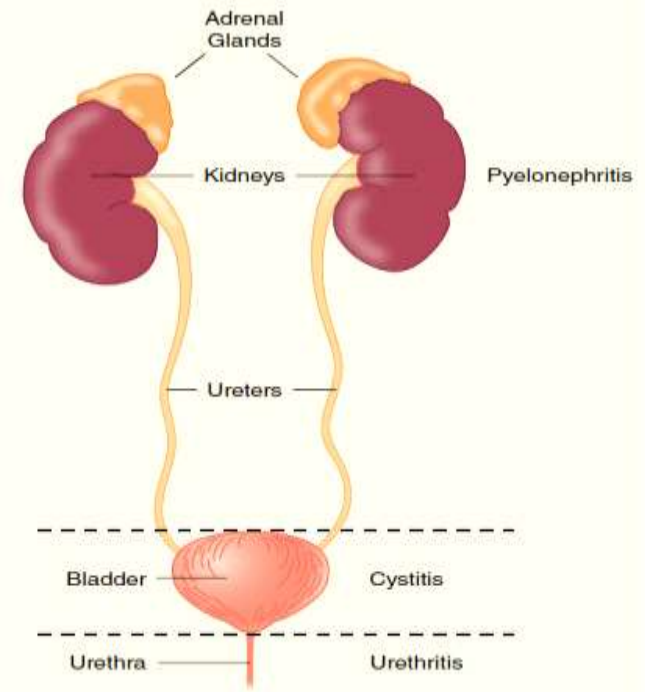
2-Nasal strips are available in several options to fit patient preference. Most are sized for adults, but a “kids” strip is available. Another option is color. Since patients may object to having a visible tan strip placed over the nose, less noticeable transparent strips are available [1].

Women's Health

1-Cystitis Lec:4

Background:

1-Cystitis means inflammation of the bladder [1]. Cystitis is common in women **but rare in men** [2] because of the **longer urethra**, which provides a greater barrier to bacteria entering the bladder; **fluid from the prostate** gland also confers some **antibacterial** property. This is especially so in men under the age of 50. After 50 years of age urinary tract infections in men become more common due to prostate enlargement [1].



2-OTC products are available for the treatment of Cystitis, but when the symptoms are **mild** or for use until the patient can consult the Dr. [2]. Additionally, cystitis affects 1% to 4% of pregnant women

Etiology

1-The majority of patients who present in the community pharmacy will have acute uncomplicated cystitis (Table 5-1) [1]. Bacterial infection is responsible for about 50% of all cases, and ***Escherichia coli*** is the most common causative organism [3].

2-The source is often the gastrointestinal (GI) tract [2] [(The **female urethra is very short** (about 3 cm) and infecting organisms are readily transferred from the perineum and anus to the bladder where they proliferate] [4].

3- *E. coli* infection results in **increased acidity of the urine**, which causes the inflammation that produces the symptoms of cystitis [3]. About half of cases will resolve within 3 days even without treatment [2].

Table 5-1: Causes of cystitis symptoms and their relative incidence in community pharmacy [1]

Incidence	Cause
Most likely	Acute uncomplicated cystitis
Likely	Pyelonephritis
Unlikely	Sexually transmitted disease, oestrogen deficiency

Very unlikely	Medicine-induced cystitis, vaginitis

Patient assessment with cystitis:

A-Gender:

Any **man** who present with symptoms of cystitis should be referred because of possibility of more serious problems such as **renal stone** or **prostate problems** [2].

B-Age:

1-Any **child** under 16 years old should always be referred (**Cystitis is unusual in children** and it may be a sign of **structural urinary tract abnormality**) [1].

2-**Elderly female** patients **(>70 years**) have a **higher rate of complications** associated with cystitis **are, therefore, best referred** [1].

C-Symptoms:

1-In cystitis the desire to pass urine become frequent (**urinary frequency**), and women may feel the need to pass urine urgently (**urinary urgency**) but pass only a few **burning**, painful drops. This frequency of urine occurs throughout the day and night [2].

2-**Dysuria** (pain on urination) is a classical symptom of cystitis. After urination the bladder may not feel completely empty, but even straining produce no further flow. Cystitis may be accompanied by suprapubic (lower abdominal) pain and tenderness [2].

3-Associated symptoms that required referral:
Hematuria (the presence of the blood in urine) [2].
Vagainal discharge (may indicate local fungal or bacterial infection) [2].
Nausea, vomiting, fever, loin pain and tenderness (may indicate **upper UTI** (kidney and ureters) [2].

When to refer
-All men [2].
-Recurrent cystitis [2].
-Failed medication [2].
-Loin pain or tenderness [2].
-Children under 16 years of age [1].
-Patients with diabetes [1].
-Duration longer than 7 days [1].
-Haematuria [1].
-Vaginal discharge [1].
-Immunocompromised [1].
-Patients with associated fever and flank pain [1].
-Pregnancy [1].
-Women older than 70 years of age

D-Pregnancy:

Any **pregnant** present with symptoms of cystitis should be **referred** because bacteruria (the presence of bacteria in urine) can lead to **kidney infection** and other problem [2].

E-Previous history:

Women with history of **recurrent cystitis** should be referred [2].

F-Duration:

Symptoms that have lasted longer **than 5 to 7 days** should be referred because of the risk that the person might have developed pyelonephritis [1].

G-Diabetes:

Recurrent cystitis can sometimes occur in diabetic patients and required referral [2].

H-Honeymoon cystitis:

Sexual intercourse may precipitate cystitis attack (honeymoon cystitis) due to minor trauma or resulting infection when bacteria are pushed along the urethra [2].

I-Medications:

A-Failed medication required referral [2].

B-Cystitis can be caused by **cytotoxics** drugs such as **cyclophosphamide** [2].

Treatment timescale:

If symptoms have not improved within **2 days** of beginning treatment, the patient should see the Dr. [2].

Management:

A-Non-pharmacological advice:

Patients should be advised to drink about 5 L of fluid during every 24-h period. This will help promote bladder voiding, which is thought to help 'flush' bacteria out of the bladder [1].

B-Pharmacological treatment:

1-The acidic urine produce by bacteria is thought to be responsible about dysuria [2]. OTC treatment is limited to products that contain **alkalinizing agents** such as Sod. Citrate, Sod. Bicarbonate and Potassium citrate [1]. e.g. of preparation available in Iraq is Citrogran® effervescent granules.

2-**Product taste:** The taste of potassium citrate mixture is unpleasant. Patients should be advised to dilute the mixture with water to make the taste more palatable [1].

Contraindications:

Potassium citrate: not recommended for anyone in home hyperkalemia may result (Patient taking ACE inhibitors, K^+-sparing diuretics, Aldosterone antagonist, Angiotensin II receptor antagonists…) [2]. It is also not recommended for hypertensive patient, anyone with heart diseases or pregnant women [2].

2-For pain relief, offer paracetamol or ibuprofen for up to 2 days [2].

References:

1-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 4th edition. 2017.
2-Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press. 2010..

3-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 7th edition. 2014..
4-Nathan A. fasttrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press. 2008.

2-Dysmenorrhea (period pain)

Background:

1-The menstrual cycle usually lasts 28 days but this varies and it can last between 21-45 days. Menstruation itself lasts between 3 and 7 days [(1)].

2-Dysmenorrhea is usually categorised as **primary** or **secondary**; primary dysmenorrhoea (PD) is defined as **menstrual pain without organic pathology** whereas in secondary dysmenorrhoea an **identifiable pathologic condition** can be identified [(1)] like endometriosis. (**further reading 1**).

Patient assessment with dysmenorrhea:

A-Age:

1-The peak incidence of PD occurs in women between the ages of 17 and 25 years [(2)].
2-Secondary dysmenorrhea (SD) is most common in women aged over 30 years and is rare in women aged less than 25 years [(2)].
Therefore, **women over 30 years** should be referred [(3)].

B-Previous history

Dysmenorrhea is often **not associated** with the start of menstruation (menarche). This is because during the early months (and sometimes years) of menstruation, ovulation does not occur. These anovulatory cycles are usually, but not always, pain free and therefore women sometimes describe period pain that begins after several months or years of pain-free menstruation [(2)].

C-Severity of pain:

Pain is rarely severe in PD; the severity decrease with the onset of menses .Any patient presenting with **severe lower abdominal pain should be referred** [(1)].

D-Timing and nature of pains (table 5-2)

Table 5-2: Primary Secondary dysmenorrhea

Primary dysmenorrhea (PD)	Secondary dysmenorrhea (SD)
Classically presents as a cramping lower abdominal pain [(2)]. **Starts very shortly before or within 24 hours of the onset of menses** and rarely lasts for more than 3 days [(1)].	Pain typically starts **a few days** (**up to 1 week)** before the onset of menses [(1, 2)].
The pain **gradually eases after the start of menstruation** and is often **gone by the end of the first day of bleeding** [(2)].	The pain can be relieved **or worsened by menstruation** [(2)].

Therefore, any woman with symptoms suggest SD [2] (**pain experienced not shortly before menses**, **pain that increase at the onset of symptoms**) should be referred [1].

E-Other symptoms:

1- Women who experience dysmenorrhea will often describe other associated symptoms. These include **nausea**, **vomiting**, general GI discomfort, constipation, headache, backache, fatigue, feeling faint and dizziness [2].

2-Any woman with the following symptoms should be referred:

Heavy unexplained bleeding [1].
Presence of abnormal **vaginal discharge** [2].
Presence signs of **systemic infection** (**such fever**, **malaise**) [1].

3-Premenstrual syndrome (see later**)**

When to refer
-Heavy or unexplained bleeding [1].
-Pain experienced days before menses [1].
-Pain that increases at the onset of menses [1].
-Women over the age of 30 with new or worsening symptoms [1].
-Accompanying systemic symptoms, such as fever and malaise [1].
-Vaginal bleeding in postmenopausal women [1].
-Presence of abnormal vaginal discharge [2].

F-Medication:

Women taking **oral contraceptive** usually find that symptoms of dysmenorrhea are reduced or eliminated altogether, therefore, any woman with symptoms of dysmenorrhea **and who is taking the pill is** probably best referred to the Dr. for further investigations [2].

Treatment timescale:

If the pain of PD is not improved after **two cycles' treatment**, referral to the Dr. advisable [2].

Management:

A-Nonpharmacological advices:

1-Symptomatic treatment with a warm bath or locally applied heat (such as hot water bottle) may provide relief [3].
2-Exercise decreases the severity of menstrual cramps through generation of endorphins, ‘the body’s own painkillers’ [3].

B-Pharmacological therapy:

1-Analgesics: treatment with simple analgesics is often very effect in dysmenorrhea [2].

A-NSAIDs (Ibuprofen, and naproxen)

NSAIDs can be considered the treatment of choice for dysmenorrhea, provided they are appropriate for the patient [2]. In addition to their analgesic

properties, NSAIDs also inhibit prostaglandin production, **decreasing uterine contractions** [4]. (table 5-3).

Table 5-3: doses of Ibuprofen and Naproxen for dysmenorrhea	
Drugs	**Dose**
Ibuprofen	200-400mg three times daily [2].
Naproxen 250mg tablets	Two tablets are taken initially then one tablet 6–8 hours later if needed. Max. daily dose is 750mg and maximum treatment time is 3 days [2].

B-Aspirin and Paracetamol:

1-Aspirin :Aspirin is less effective than ibuprofen in relieving the symptoms of dysmenorrhea and is more irritant to the stomach than NSAIDs (best avoided in women who experienced nausea and vomiting with dysmenorrhea) [2].
Dose: for dysmenorrhea, the dose is 650- 1000mg every 4-6 hours (max. 4 gm/day) [5].

2-Paracetamol: It is theoretically less effective for the treatment of dysmenorrhea than NSAIDs (because it does not inhibit PG synthesis), however, it may buy used by patients who cannot take NSAIDs because of stomach problems or because of sensitivity [2].

C-Hyoscine butyl bromide (Buscopan® 10 mg tablet) :

The recommended dose for adult is **two tablets four times** a **day** [1].

Side effects: Anticholinergic side effects such as dry mouth, visual disturbances and constipation can be experienced but are generally mild and self-limiting [1].
It is contraindicated in patients with narrow- angle glaucoma [1].
Interactions: Side effects are potentiated if it is given with tricyclic antidepressants, and antihistamines [1].

D-Caffeine

Some OTC products contain caffeine .There is some evidence that caffeine may enhance analgesic effect [2].

Practical points

1-Take the first dose as soon as your pain begins or as soon as the bleeding starts, whichever comes first [2].

3-Take the tablets **regularly**, for 2–3 days of menstrual each period, rather than ‘now and then’ when pain builds up [2].

4-A patient with dysmenorrhea may respond better to **one NSAID than to another**. If the maximum nonprescription dosage of one agent does not provide adequate benefit, then **switching to another** agent is recommended [5].

References:
1-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 4th edition. 2017.

2-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 7th edition. 2014.
3-Nathan A. fasttrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press. 2008.
4-Marie A. Chisholm-Burns .Pharmacotherapy Principles & Practice. 4th edition. 2016.
5-American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 18th edition. 2016.

3-Premenstrual syndrome

The term premenstrual syndrome (PMS) describes a collection of symptoms, both **physical** and **mental**, whose incidence is related to the menstrual cycle. Symptoms are experienced cyclically, usually from 2 to 14 days before the start of menstruation. Relief from symptoms generally occurs once menstrual bleeding begins [(1)].

Causes

The cause of PMS is unknown, but it is **associated with ovulation** as it does not occur before puberty, during pregnancy or after the menopause, or in women who do not ovulate. One theory is that women with PMS are abnormally sensitive to progesterone secreted following ovulation, and that this reduces levels of pyridoxine. **Pyridoxine** is a coenzyme in the final step of the biosynthesis of **serotonin**, a neurotransmitter known to have potent effects on mood, and its deficiency may contribute to the depressive symptoms [(2)].

Symptoms (table 5-6)

Sufferers often complain of a **bloated abdomen**, **increase in weight**, **swelling of ankles** and **fingers**, **breast tenderness** and **headaches**.

Women who experience PMS describe a variety of mental symptoms that may include any or all of **irritability**, **tension**, **depression**, **difficulty in concentrating** and **tiredness** [(1)].

Table 5-6: Common symptoms of PMS [(3)].

Physical	Behavioral	Mood
Swelling	Sleep disturbances	Irritability
Breast tenderness	Appetite changes	Mood swings
Aches	Poor concentration	Anxiety/tension
Headache	Decreased interest	Depression
Bloating/weight	Social withdrawal	Feeling out of control

Treatment

Treatment of the symptoms of PMS is a matter for debate and **there is a high placebo response** to therapy [(1)].

1-Pyridoxine (B6) : The dosage of pyridoxine should be limited to 100 mg daily because of the risk for peripheral neuropathy with higher dosages [(4)]. **If no benefit is perceived within 3 months, treatment should be discontinued** [(5)].

2-Calcium

Calcium supplementation should provide at least **1200 mg of elemental calcium per day**. It is important to ensure that a product taken by the patient provides the required amount of elemental calcium. Calcium supplements can cause mild gastrointestinal disturbances such as nausea and flatulence [(3)].

3-Evening primrose oil (EPO) has been used to **treat breast tenderness** associated with PMS. The active component of **evening primrose oil is gamma-linolenic (gamolenic) acid** [(1)].
A systematic review concluded that, on the limited evidence available, EPO was of little value in the management of PMS. All preparations of EPO have since been withdrawn in UK, and there are no licensed medicines containing it, although it remains available in products marketed as food supplements [(5)].

References:

1-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 7th edition. 2014.
2-Nathan A. fasttrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press. 2008.
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4-American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 18th edition. 2016.
5-Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press. 2010.

Further reading

1-[Endometriosis simply means presence of endometrial tissue outside of the uterus [(1)]. Each section of endometrium is sensitive to hormonal changes occurring during menstrual cycle and goes through the monthly changes of thickening, shedding and bleeding. This cause pain wherever the endometrial tissue is found] [(2)]

Women's Health Lec:5

4-Emergency hormonal contraception

Dealing with requests for emergency hormonal contraception (EHC) requires sensitive interpersonal skills from the pharmacist. **Enabling privacy for the consultation is essential** [1].

Assessment

A-Age:

EHC can be supplied OTC for women **aged 16 years and over in UK (17 years and older in USA).** For women under 16 years the pharmacist can refer to the doctor [1, 2].

B-Why EHC is needed:

The most common reasons for EHC to be requested **are failure of a barrier contraceptive method** (e.g. condom that splits), **missed contraceptive** pill(s) and **unprotected sexual intercourse** (UPSI) [1]. (table 5-4 **further reading 1)**

C-When unprotected sex/contraceptive failure occurred:

1-**levonorgestrel** needs to be started within **72 h** of unprotected intercourse. The sooner it is started, the higher is its efficacy [1].
2-**Ulipristal**: taken as soon as possible but no later than **120 hours** (5 days) after unprotected sex or contraceptive failure [4].

D-Could the woman already be pregnant?

If pregnancy is suspected (if the period is different from normal (lighter, shorter) or more **than 3 days later than usual**), the pharmacist can suggest that the woman has a **pregnancy test**. EHC will not work if the woman is pregnant. There is no evidence that EHC is harmful to the pregnancy [1].

E-Other medicines being taken:

1-Women taking the following medicines should be referred to an alternative source of supply of EHC: [Anticonvulsants (carbamazepine, phenytoin, primidone, Phenobarbital, phenobarbitone), Rifampicin and rifabutin, Griseofulvin, Ritonavir] [1]. (**further reading 2**)

Treatment timescale

EHC must be started within 72 h of unprotected intercourse in case of **levonorgestrel** [1] and within 120 h of unprotected intercourse in case of **ulipristal** [4].

Treatment

Levonorgestrel (1.5 mg tablet) and **Ulipristal** (30 mg tablet) are taken as a dose of one **tablet as soon as possible after unprotected intercourse** [1].

Mode of action : (further reading 3)

Side-effects

1-**levonorgestrel** : The most likely side-effect is **nausea**, which occurred in about 14% of women taking levonorgestrel EHC. Far fewer women (1%) actually **vomited** [(1)].

2-**Ulipristal**: Common side effects that affect up to 10% of women are mood disorders, headache, dizziness, nausea, pain (abdominal, back or period), breast tenderness and fatigue [(4)].

3-For both drugs, If vomiting occurs **within 3 hours** of taking the tablet another tablet should be taken [(4)].

Women who should not take EHC

The product should not be taken by a woman who is **pregnant** (because it will not work), has **severe hepatic dysfunction** or has **severe malabsorption** (e.g. **Crohn's disease**) [(1)].

References:

1-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 7th edition. 2014.

2-American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 18th edition. 2016.

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5-Menorrhagia (Heavy menstrual bleeding)

Heavy menstrual bleeding (HMB) may be defines as **'excessive menstrual blood loss** which interferes with a woman's physical, social, or emotional **quality of life'** [(1)].

Patient assessment with HMB:

A-Clinical features of HMB

The key symptom will be blood loss that is perceived to be **greater than normal** [(1)].

Table 5-5:Medication that can alter menstrual bleeding [(1)].
Anticoagulants
Cimetidine
Monoamine oxidase inhibitors
Phenothiazines
Steroids
Thyroid hormones

B-Timing of bleeding

Symptoms that might suggest structural or pathological abnormality include bleeding at **times other than at menses** [(1)].

Irregular bleeding between periods especially if associated with postcoital bleeding is extremely significant and suggests pre-cancerous/cancer of the cervix [(1)].

(Endometrial and cervical carcinoma are usually occurs in postmenopausal women) [(1)].

C-Medications

1-Occasionally, medicines can change menstrual bleeding patterns (Table 5-5). If an adverse drug reaction is suspected then the pharmacist should contact the prescriber and discuss other treatment options [1].

2-The incidence of menstrual pain is higher in patients who have had an intrauterine device fitted [1].

When to refer
-Presence of abnormal vaginal discharge [2].
-Intermenstrual and/or postcoital bleeding [2].
-Pelvic pain [2].
-Pain on intercourse (dyspareunia) [2].
-Dysmenorrhoea [2].
-Presence of fever [2].
-Treatment failure [1].

Management and Treatment timescale

1-If menorrhagia/HMB coexists with dysmenorrhoea, the use of NSAIDs should be preferred to tranexamic acid [1].

2-If there is no improvement in symptoms **within 3 menstrual cycles**, then use of NSAIDs and/or tranexamic acid should be stopped [1].

Note: prostaglandins in the endometrium of women who suffer from menorrhagia is higher than in normal women. The exact mechanism by which the excessive blood loss occurs remains speculative. **NSAIDs in adequate dosages decrease ovulatory bleeding** by approximately 30-40% [3].

1-**Tranexamic acid** (cyklokapron® 500 mg tablet) is effective medicine in decreasing menstrual blood loss. It reduces blood loss by up to 50% [1].

2-Tranexamic acid is an **antifibrinolytic** and stops the conversion of plasminogen to plasmin - an enzyme that digests fibrin and thus brings about clot dissolution [1].

3-Tranexamic acid should be taken **once bleeding starts.** The dose is two tablets 3 times a day for a maximum of 4 days. The dose can be increased to two tablets 4 times a day in very heavy menstrual bleeding. The maximum dose is eight tablets (4 g) daily [1].

4-Side effects are unusual. Those reported include mild nausea, vomiting and diarrhoea (affecting between 1% and 10% of patients) [1].

5-Tranexamic acid should not be taken in patients on anticoagulants, taking the combined oral contraceptive, unopposed oestrogen or tamoxifen [1].

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6-Vaginal discharge

Background:

Patients of any age can experience vaginal discharge. The three most common causes of vaginal discharge are **bacterial vaginosis**, **vulvovaginal candidiasis** [fungal infection (**thrush**)] and **trichomoniasis (**a protozoan infection) (table 5-7). As thrush is the only condition that can be treated OTC [(1)].

Table 5-7: Causes of vaginal discharge and their relative incidence in community pharmacy [(1)]	
Incidence	**Cause**
Most likely	Bacterial vaginosis
Likely	Thrush (medicine-induced thrush)
Unlikely	Trichomoniasis, atrophic vaginitis, cystitis

Further reading 4

Patient assessment with vaginal thrush:

A-Age:

Women **under the age of 16 or over 60** complaining of symptoms of vaginal thrush should be Referred [(2)].

The vagina harbours an extensive flora of bacteria and fungi. In **women of child-bearing age**, oestrogen promotes the production of glycogen in the vaginal epithelium. The glycogen breaks down to glucose and lowers the pH of vaginal secretions, promoting an environment favourable to the growth of Candida [(3)].

The lack of oestrogen in children and postmenopausal women means this protective barrier is not present, with a consequent increased tendency to bacterial (but not fungal) infection [(2)].

B-symptoms:

1-Discharge:

Discharge that has a **strong odour** and is **not white and curd- like** should be referred, as trichomoniasis or bacterial vaginosis are more likely causes [(1)]. Any **blood** staining of vaginal discharge should be referred [(2)]

2-Itch (pruritus):

Vaginal itching tends to be most prominent in thrush compared with bacterial vaginosis and trichomoniasis where itch is slight or absent [(1)].

(The hallmark symptoms of vaginal thrush in most women are vulvar pruritus and burning. This is usually accompanied with soreness and irritation) [(4)]

Vaginal pruritus may actually be caused by some of the products used to relieve the symptoms that often contain local anesthetics which may cause sensitivity reactions [(2)] (**further reading 5**).

3-Dysuria (pain on urination): Vaginal thrush associated with lower abdominal pain or **dysuria** may indicate a urinary tract infection and required referral [3].

C-Previous history:

1-Any woman with **first occurrence of the symptoms** required referral [2].
2-Patients with recurrent attacks: **more than two within the previous 6 months** may indicate an **underlying cause such as diabetes** and should be referred [3].

D-Pregnancy:

Any pregnant woman with vaginal thrush should be referred [1, 2].
(During pregnancy almost **one in five women** will have an episode of vaginal candidiasis. This high incidence has been attributed to hormonal changes with a consequent alteration in the vaginal environment leading to the presence of increased quantities of glycogen [2].

E-Diabetes:

Diabetic woman with vaginal thrush required referral [1].
(Patients with poorly controlled diabetes (type 1 or 2) are more likely to suffer from thrush because hyperglycaemia can enhance production of protein surface receptors on C. *albicans* organisms. This hinders phagocytosis by neutrophils, thus making thrush more difficult to eliminate) [1].

F-Sexually Transmitted Diseases (STDs):

Women who have **previous history of STDs** should be referred (with previous history of STDs the current condition may not be thrush or may include dual infections with other organisms [2].

When to refer
-First occurrence of symptoms [2].
-Known hypersensitivity to imidazoles or other vaginal antifungal products [2].
-Pregnancy or suspected pregnancy [2].
-More than two attacks in the previous 6 months [2].
-Previous history of STD [2].
-Exposure to partner with STD [2].
-Patient under 16 or over 60 years [2].
-Abnormal or irregular vaginal bleeding [2].
-Any blood staining of vaginal discharge [2].
-Vulval or vaginal sores, ulcers or blisters [2].
-Associated lower abdominal pain or dysuria [2].
-Adverse effects (redness, irritation or swelling associated with treatment) [2].
-No improvement within 7 days of treatment [2].
-Patients with diabetes [1].

G-Medication:

What treatment had the patient tried before seeking our advice (failed medication required referral) [2].

Broad spectrum **antibiotics**, **corticosteroids**, **cancer chemotherapy**, and medication that affecting the **estrogen status** of the patient (oral contraceptives, hormon replacement therapy (HRTt), tamoxifen) can predispose women to thrush.

So the prescriber should be contacted to discuss suitable treatment options and, if appropriate, alternative therapy [1].
(Some women find that an episode of thrush follows every course of antibiotics they take. The Dr. may prescribe an antifungal at the same time as the antibiotic in such cases) [2].

Treatment timescale:

Patient should seek medical advice if symptoms **do not improve within 3 days** or are not gone within 1 week [5].

Management:

Topical imidazoles and **one systemic (oral) triazole (fluconazole)** are available OTC to treat vaginal thrush. Treatment choice is driven by patient acceptability and cost [1].

A-Oral Fluconazole:

Dose: single dose (150 mg) taken at any time of the day [1]. It is well absorbed when taken by mouth, and symptoms usually improve 12–24 hours after administration [3].
S/E: GIT disturbances (nausea, vomiting, diarrhea, and flatulence) occur in up to 10 % of patients [1].
D-D interactions: Oral fluconazole interacts with some drugs: anticoagulants, oral sulphonylureas, ciclosporin (cyclosporin), phenytoin, rifampicin and theophylline [2]. (**further reading 6**)
Fluconazole is not recommended during pregnancy (which already should be referred) and in breast feeding mother (present in milk) [1, 2].

B-Topical imidazoles (Clotrimazole, Econazole, Miconazole, Butoconazole and tioconazole):

1-**A number of formulations are** available including vaginal **tablets**, **creams**, and **pessaries** [1]. Creams are also available for application to the **vulva to treat irritation** [6] (The cream should be applied twice daily, morning and night) [2].

2-All **internal preparations** should be administered **at night** (this give the drug time to be absorbed, and Eliminate the possibility of accidental loss which is more likely to occur if the person is mobile) [1][a product called **Monistat** 1 ® (miconazole nitrate 1200 mg suppository) has also been approved for insertion **in the morning or at bedtime**, allowing flexibility for patients][5]..

3-They come in 1-, 3-, and 7-night regimens, in a variety of formulations including suppositories (vaginal tablets/ovules), creams, and ointments and in combination packages [4].

4-Topical agents are safe and effective during pregnancy but pregnant need referral [1].

Practical points:

Patient seeking an advice about vaginal symptoms may be **embarrassed**, it is therefore **important to ensure privacy** [2].

1-Vaginal antifungal can be used during the menstrual period. If desired, wait and treat the infection after the menses end. Do **not, however, interrupt a course of therapy** because of the beginning of period [5].

2-**Sexual intercourse should be avoided until cure is complete**, to avoid transfer of infection and reinfection [3.

3-Treatment of husband: Asymptomatic husband does need to be treated. Symptomatic male (typical symptoms for men are an irritating rash on the penis) with candidal balanitis (penile thrush) and whose wife has vaginal thrush should be treated with topical azoles **twice daily for 6 days**. Oral fluconazole can also be used [2].

4-Prevention: Thrush thrives in a moist, warm environment: keep the area cool and dry by careful hygiene, use of cotton rather than synthetic underwear and careful drying after washing the vaginal area [1, 3].

7-The protective lining of the vagina is stripped away by foam baths, soaps and douches and these are best avoided. Vaginal deodorants can themselves cause allergic reactions and should not be used. If the patient wants to use a soap or cleanser, an unperfumed, mild variety is best [2].

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Further reading

1-

Table 5-4: Recommendations for use of EHC للاطلاع.	
Combined pills	If two or more active ethinyloestradiol pills have been missed in the first week of pill taking (i.e. days 1–7) and UPSI occurred in week 1 or the pill-free week [1]. **Note**: If two or more pills are missed from the last seven in a pack, EHC is not necessary providing that the next pack is started immediately, i.e. without the normal pill-free break [3].
Progestogen-only pills (POPs)	If one or more POPs have been missed or taken >3 h late (>12 h late for desogestrel) and UPSI has occurred in the 2 days following this [1].
Progestogen-only injectable	If the contraceptive injection is late (>14 weeks from the previous injection for medroxyprogesterone acetate or >10 weeks for norethisterone enantate) and UPSI has occurred [1].
Barrier methods	If there has been failure of a barrier method [1].

2-There is an interaction between *ciclosporin* and *levonorgestrel*. Here, the progestogen inhibits the metabolism of *ciclosporin* and increases levels of the latter. A woman requesting EHC who is taking *ciclosporin* should be referred [(1)].

3-Levonorgestrel is thought to act in one of several ways, depending on the point in the menstrual cycle at which it is used:

-Before ovulation it may prevent ovulation by delaying or inhibiting the release of the ovum from the ovary.

-After ovulation it may **prevent fertilization** by affecting the motility of the fallopian tube and preventing sperm from meeting the ovum.

-fter fertilization it induces changes in the endometrium that render it unreceptive to the ovum and **prevent implantation**.

All mechanisms are considered to be **contraceptive rather than abortifacient**, as clinically conception and the start of the pregnancy are not considered to have occurred until a fertilized ovum is implanted in the endometrium [(3)].

Ulipristal works by inhibiting or delaying ovulation via suppression of the luteinizing hormone surge [(4)].

4-

A-**Bacterial vaginosis:** this is the commonest cause of vaginal discharge. The exact cause of bacterial vaginosis is unknown although *Gardnerella vaginalis* is often implicated. Approximately half of patients will experience a thin white discharge with a strong fishy odour [(1)].

B-Trichomoniasis: a protozoan infection (*Trichomonas vaginalis*) is primarily transmitted through sexual intercourse. It is uncommon compared to bacterial vaginosis and thrush. Up to 50% of patients are asymptomatic. If symptoms are experienced a p**rofuse, frothy, greenish-yellow and malodorous discharge accompanied by vulvar itching and soreness is typical** [(1)].

5-Allergic or irritant dermatitis may be responsible for vaginal itching, therefore, pharmacist needs to ask the patient if she **recently** used any new toiletries (e.g. soap, bath or shower products) or vaginal deodorants.
Women sometimes use a harsh soap, antiseptics, and vaginal douches in over enthusiastic cleansing of the vagina. Regular washing with warm water is all that needed to keep the vagina clean and to maintain healthy vaginal environment [(2)].

6-However, these drug interactions relate to the use of multiple-dose fluconazole and the relevance to single-dose fluconazole has not yet been established. It would be prudent to avoid these combinations until further evidence is available with single-dose fluconazole [(1)].

Respiratory Tract Conditions

3-Seasonal Allergic Rhinitis Lec:6

Rhinitis is simply inflammation of the nasal lining. It is characterized by **rhinorrhoea**, nasal **congestion**, **sneezing**, and **itching** (١).

Seasonal allergic rhinitis (SAR) and/or **conjunctivitis**, more commonly known as **hay fever**, are **allergic reactions** in the nasal mucosa and the conjunctiva of the eye associated with the **presence of pollens in the atmosphere**.
Hay fever occurs at certain times of year. The most common causes are:

- **Tree** pollens in **spring**.
- **Grass** pollen in **summer** (٢).

Patient Assessment with Allergic Rhinitis:

A-Symptoms:

1-The patient usually have all ***four*** classical symptoms of nasal **itch, sneeze, rhinorrhoea, and nasal congestion** , however, the patient might also suffer from ocular irritation , giving rise to **allergic conjunctivitis** (1).

2-The nasal discharge is often thin, watery, and clear, but it may be change to colored and purulent one which may indicate secondary infection**. However the treatment is not altered and Antibiotic are usually not needed** (3).

3-Symptoms of allergic rhinitis may be **confused with that of common cold;** the two conditions may be distinguished by the following points (table 2-3) (2):

Table 2-3: Differential diagnosis of allergic rhinitis and the common cold (2)	
Allergic rhinitis	**Common cold**
Ocular symptoms present	Usually **no ocular** symptoms
Symptoms continue for as long as the patient is exposed to the allergens , **often for several weeks**	Symptoms last for about **4-to several days**
Symptoms occur at **the same time Each year**.	Can occur at any time of the year but more usually in the **winter months**
Only affect **isolated individuals**.	**Highly contagious** (affects other family members and may be common within the community.

B-Associated symptoms:

1-Earache and facial pain: As with cold and flu, allergic rhinitis can be complicated by secondary bacterial infections in middle ear (**otitis media**) or the sinuses (**sinusitis**), therefore patients with painful ear or painful sinuses required referral (3).

2-When associated symptoms such **as wheezing, tightness of the chest, shortness of breath** (SOB)are present, immediate referral is advised. These symptoms may herald the onset of an asthmatic attack [3].

3-Eye symptoms:
The eyes may be **itchy** and also **watery (allergic conjunctivitis)**, occasionally, this may be complicated by a secondary bacterial infection in which the discharge change from clear watery to **sticky colored (purulent)** [3]

C-Seasonal variation:

Repetitive and predictable seasonal symptoms characterize **SAR** [4].

D-Triggers:

Classically symptoms of hay fever **are more severe in the morning and evening** this is because pollen rises during the day after being released in the morning and then settled at night. Hay fever symptoms worsen also on **windy days**. While symptoms **may be reduced after rain** [3] and when the patient stay indoors [1].

E-Family history:

If a first degree relative suffers from **atopy** then hay fever is the most likely cause of rhinitis [1].
(Atopy: A form of hypersensitivity characterized by a familial tendency**)** [1].

F-Medication:

When to refer [1, 3]
Wheezing and shortness of breath
Tightness of chest
Painful ear
Painful sinuses
Failed medication
Medicine-induced rhinitis

1-If one or more **appropriate** remedies have been tried **without success** (failed medication), referral is required [3].
2-Medication of other condition:
-To avoid drug-drug interactions between the recommended OTC and this drugs [3].
- A number of oral medications are implicated in causing rhinitis including alpha adrenoceptor antagonists (e.g. terazosin)(used for benign prostate hyperplasia) [1].

Treatment timescale:

If no improvement is noted after **5 days** of therapy, the patient should be referred [3].

Management:

A-Nonpharmacological advices for SAR [2]:

1-Stay **indoors** and keep all **windows closed**.
2-**Avoid going out**, particularly in the early **evening and mid-morning**.
3-Wear close-fitting **sunglasses** when outside, and a **mask** if symptoms are really severe.
4-In the car, **keep windows closed**, especially on motorways. Keep the air conditioning system on, if there is one.

B-Pharmacological therapy:

Pharmacists now possess a wide range of options to treat SAR. Medications used can be divided into two categories [1]:

Topical: corticosteroids, antihistamines, mast cell stabilizers, and decongestants.

Systemic: Antihistamine and decongestants.

1-Topical therapy:

A-Steroid nasal sprays: Beclometasone, fluticasone, and triamcinolone:

1-A steroid nasal spray is the **treatment of choice** for moderate to severe nasal symptoms [3] and superior to oral antihistamine [5].

2-They can be used in patients aged over 18 years **for up to 3 months** [3].

3-Ideally treatment should be start **at least 2 weeks before symptoms are expected** [2].

4-Regular use is essential for full benefit [3] and **it should be continued throughout the hay fever season** and repeated each year [2. If symptoms are already present, the patient needs to know that **it take several days** before full effect is reached [3].

5- **Side effects:** are (nosebleed, dryness and irritation of nose and throat) [3] but these are mild and transient [5].

Note: Patient sometimes **alarmed by the term (steroid) t**herefore the pharmacist needs to take account of these concerns [3].

6-They should not be recommended for anyone with **glaucoma** [1, 3]. Manufacturers recommend that they are not used during pregnancy and breastfeeding due to insufficient evidence to establish safety. However, exposure data do suggest that they are safe [2]. (They are considered to be safe for use during pregnancy) [7].

7-Corticosteroid nasal sprays are suspensions and the bottle should be shaken before use [1].

8-Recommended adult doses of nasal steroids are listed in (table 2-4) [7].

Table 2-4: Recommended adult doses of nasal steroids [7] للاطلاع

Drug	Dose
Beclometasone spray (50 mcg/ one spray)	100 mcg (2 sprays) twice daily, dose to be administered into each nostril, reduced to 50 mcg twice daily, dose to be administered into each nostril, dose to be reduced when symptoms controlled; maximum 400 mcg per day.
Fluticasone spray (50 mcg/ one spray)	100 mcg once daily, to be administered into each nostril preferably in the morning, increased if necessary to 100 mcg twice daily; reduced to 50 mcg once daily, dose to be administered into each nostril, dose to be reduced when control achieved.
Triamcinolone spray (55 mcg/ one spray)	110 mcg once daily, dose to be sprayed into each nostril, reduced to 55 mcg once daily, dose to be sprayed into each nostril, reduce dose when control achieved

B-Mast cell stabilizers (Sodium cromoglicate):

1-This is available OTC as nasal drop or spray (4%) and as eye drop [3]. Like Corticosteroids (CS) , sodium cromoglicate is a prophylactic agent, but their place in nasal symptoms of allergic rhinitis is **limited because it is less effective than steroids and it need more frequent administration** (4-6 times a day) [1].

2-It is preferably **started 1 week before the hay fever season** is likely to begin and then used continuously [3] .
3-There are no significant side effects although nasal irritation may occur. [3] It has no drug interactions and can be given to all patient groups. Clinical experience has shown cromoglicate to be safe in pregnancy, and expert opinion considers sodium cromoglicate to be safe in breastfeeding [1].

C-Topical Decongestants: see **common cold lecture**.

D-Topical antihistamine:
Azelastine is a nasal spray used in allergic rhinitis. Topical antihistamines are considered **less effective than topical corticosteroids** but probably more effective than cromoglicate. The BNF suggests that treatment should **begin 2–3 weeks before the start of the hay fever** season. The dose: Apply twice daily; increased if necessary to 4 times a day, maximum duration of treatment 6 weeks [7].

E-Topical ocular preparations:
1-Most eye symptoms will be controlled by oral antihistamines, however if symptoms are persistent or particularly troublesome, topical ocular preparations are effective [5]:
2-**Ocular preparations** include sodium cromoglicate and decongestants-antihistamine (Naphazoline-Antazoline) (**see lecture of eye disorders**).

2-Systemic (oral) therapy:

A-Systemic (oral) decongestants: like Pseudoephedrine, phenylphrine and ephedrine which constrict the dilated blood vessels of the nose [3]. (**see common cold**)

B-Antihistamines:
1-Many pharmacists would consider these drugs to be the first-line treatment for mild to moderate and intermittent symptoms of allergic rhinitis. They are effective in reducing sneezing and rhinorrhoea, less so in reducing nasal congestion [3] . (see common cold).
Note 1 (important): The maximum effect of antihistamines is achieved if they are block histamine release before it occurs. **For maximum effectiveness, therefore, antihistamines should be taken when symptoms are expected rather than after they have started [5].**

2-**Breakthrough symptoms with one-a-day antihistamines:** Patients who suffer breakthrough symptoms using a once daily preparation (loratadine, cetirizine) may benefit from changing to acrivastine, as three-times-a-day dosing may confer better symptom control [1].

C-Combination products: sympathomimetics + Antihistamine (see common cold).

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4-Sore Throat

1-Most sore throat which present in the pharmacy will be caused by viral infection (90%). with only one in ten (10%) being due to bacterial infection so the treatment with **antibiotics is unnecessary in most cases** (1).
Clinically, differentiation between viral and bacterial sore throat is extremely difficult (2).
Causes of sore throat and their relative incidence are shown in (table 2-5) (2).

2-Patients will present with a sore throat as an **isolated symptom** or as part of a **cluster of symptoms** that include rhinorrhoea, cough, malaise, fever, headache and hoarseness (laryngitis) (2).

Table 2-5: Causes of sore throat and their relative incidence in community pharmacy (2)

Incidence	Cause
Most likely	Viral infection
Likely	Streptococcal infection
Unlikely	Glandular fever, trauma
Very unlikely	Carcinoma, medicines

Patient assessment with sore throat:

A -Age:

Although viral causes are the most common cause, streptococcal infections are more prevalent in people under the age of 30, particularly those of school age (5–10 years) and young adults (15–25 years old) (2).

B-Duration:

Most sore throats are self-limiting and will be better within 7-10 days (1). Therefore, sore **throat lasting more than 2 weeks** should be referred (2).

C- Severity:

If the sore throat is described **as extremely painful**, especially in the absence of cold, cough or catarrhal symptoms, **then referral** should be recommended if there is no improvement within 24-48 hours (1).

D-Previous history:

Recurrent bouts of infection (**tonsillitis**) would mean that referral is best (1).

E-Associated symptoms:

A cold, catarrh and cough may be associated with a sore throat. There may also be a fever and general aches and pains (these are in keeping with a minor self-limiting viral infection) (1).

Symptoms that may need referral:

1-Dysphagia: Most patients with sore throat will find it less easily to swallow (not required referral) but this has to be differentiated from **actual difficulty inswallowing** (dysphagia) that required referral. True difficulty in swallowing (dysphagia) (i.e. not just caused by pain but mechanical blockage) should be referred [(2)].

2-Hoarseness: when hoarseness persist **for longer than 3 weeks**, referral is necessary [(1)].

3-Apperance of throat:

Unfortunately the appearance of throat can be the same in both viral and bacterial sore throat (Which may be normal appearance or the presence of white spots, exudates or pus on tonsils) [(1)].

However, **marked tonsillar exudates accompanied with high temperature and swollen glands** required referral (Possible bacterial cause and may require antibiotics) (table 2-6) [(2)].

Table 2.6: Features of viral and bacterial sore throat [(2)].

	Age	**Tonsillar/ pharyngeal exudate**	**Duration**	**Cervical glands**	**Cough present**	**Other symptoms**
Viral infection	Any age	Possible, but Generally limited	3–7 days	Normal	Common	Low-grade fever, headache
Bacterial infection	School children	Often present and can be substantial	3–7 days	Swollen	Rare	High-grade fever, possible rash

F-Present medications:

1-A rare complication of certain medication is **agranulocytosis** (suppression of WBC production in the bone marrow) [(1)] which can manifest as fever, **sore throat**, and ulceration t. The patient will probably present with signs of infection, including fever and chills. Examples of drugs that cause this adverse event are: (**Captopril, carbimazole**, cytotoxics, pencillamine, sulfasalazine, neuroleptics e.g. clozapine) [(2)].

When to refer
-Duration of more than 2 weeks [(2)].
-Marked tonsillar exudate, accompanied with a high temperature and swollen glands[(2)].
-Adverse drug reaction [(2)].
-People taking medicines that can interfere with the immune response (e.g., immunosuppressants, disease-modifying antirheumatics) [(2)].
- Dysphagia [(2)].
-Associated skin rash [(2)].
- Hoarseness of more than 3 weeks' duration [(1)].
- Recurrent bouts of infection [(1)].
- Failed medication [(1)].

2-Steroid inhalers can cause hoarseness. Generally, they tend to do this at high doses. It is worthwhile checking the patient's inhaler technique. If you suspect this is the problem, discuss with the doctor [1].

Treatment timescale:

Patients should a doctor in if the sore throat has not improved **in 1 week** [1].

Management:

The majorities of sore throats **are viral and are self-limiting.** Medication therefore aims to **relieve symptoms and discomfort while the infection runs its course** [2].

A-Oral analgesics:

Simple systemic analgesics such as Paracetamol, aspirin, and ibuprofen are effective in **reducing the pain associated with sore throat** [2].

The patient can be advised to take the analgesics **regularly** (**not on an 'as needed' basis**) to sustain the pain relief [1, 2].

Note: Flurbiprofen is a non-steroidal anti-inflammatory drug (NSAID) that is available as a lozenge formulation for the relief of sore throat [3]**.** It is used for adults and children aged 12 years and over [2].
The dosage is one lozenge is sucked or dissolved in the mouth every 3–6 h as required, to a maximum of five lozenges. Flurbiprofen lozenges can be used for up to 3 days at a time [1].

B-locally acting preparations (Lozenges and pastilles):

1-The action of sucking anything produces saliva, which lubricates and sooth the inflamed tissues. All lozenges (**regardless of ingredients**) produce this action and much (if not all) of their effectiveness is due to this [3].

2-Gargles or lozenges?
Gargles have very short contact time with inflamed mucosa and therefore any effect will be short lived. A lozenge or a pastille is preferable, as contact time will be longer [2].

3-Non medicated demulcents pastilles such as that containing lemon, honey, glycerin… may be as effective as anything for soothing the sore throat (as in the above note).They can be taken as **often as required t**o stop the throat feeling dry, thereby relieving discomfort. Some products contain volatile oil such **as menthol** , and eucalyptus oil which produce a sensation of **clearing the blocked nose** which may accompany the sore throat [3].

4-Most products do contain a sugar base, but the amount of sugar is too small to substantially affect blood glucose control and therefore can be recommended to diabetic patients [2]. Several sugar-free throat lozenges are available [3].

5-local anesthetic**s (e.g. benzocaine) are included in a number of marketed products (throat lozenges) and used** for patient who finds the swallowing uncomfortable. The Local anesthetics can **cause sensitization i**n some individuals with prolong use, so usage should be limited to **5 days**.
Local anaesthetics should not be used at all by children or elderly people [(3)].

References:

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