Heart burn continue…

6-Medication: to know:

1-What had been tried to treat the condition (**failed medication** required referral).

2-A number of medicines can **cause gastric irritation**, leading to or provoking GI discomfort, or they **can decrease lower esophageal sphincter tone, resulting in reflu**x [**calcium channel blockers**, such as amlodipine, **antidepressants** (particularly those with more pronounced antimuscarinic (anticholinergic) effects, such as amitriptyline), **theophylline**, **nitrates**, **iron supplements** and the **phosphodiesterase inhibitors**, such as sildenafil and Tadalafil]. **NSAIDs**, such as ibuprofen, will make the inflammation in esophagitis worse. **Bisphosphonates** (e.g. alendronate), which are taken for treating osteoporosis, can cause severe esophagitis; therefore, **it is important that people drink water and stay upright after taking them**.

When to refer

1-Failure to respond to antacids **2-** Related to prescribed medication **3-**Pain radiating to arms **4-**Difficulty in swallowing **5-**Regurgitation **6-**Long duration and/or worsening over time

7-Increasing severity **8-**Children

Treatment timescale

If symptoms have not responded to treatment after 2 week the patient should see a doctor.

Management:

Non-pharmacological advices:

1-Eat small and frequent meals (to avoid distending the stomach).

2-The evening meal is best taken several hours before going to bed (evening meal 3–4 h before going to bed, if possible).

3-Elevating the head of the bed or placing **GERD pillow** beneath the patient's upper torso and head also is beneficial. **Use of traditional pillows to elevate the upper torso may worsen symptoms** because they cause the patient to bend at the waist, which contributes to an increase in intragastric pressure.

4-**Wear loose fitting clothing**. (Tight, constricting clothing, especially waistbands and belts, can be an aggravating factor and should be avoided).

5-**Avoid smoking** and foods that exacerbate symptoms of GERD. (Smoking, alcohol, caffeine and chocolate have a direct effect by making the esophageal sphincter less competent by reducing its pressure and therefore contribute to symptoms)

6-**Weight reduction** should be advised.

Pharmacological Therapy:

A-Antacids (AL salts, Mg salts, Ca-carbonate, Na-bicarbonate, …):

Practical points:

1-Best time for taking Antacids:

Antacids are best taken about 1 h after a meal because the rate of gastric emptying has then slowed and the antacid will therefore remain in the stomach for longer. Taken at this time antacids may act for up to 3 h compared with only 30 min–1 h if taken before meals. Although antacids may be taken on when-needed basis

2-Dosage form:

Liquids and powders generally provide faster relief and have greater neutralizing capacity than tablets, as they are mixed very quickly with the stomach contents and their small particle size provides a large contact surface area for neutralizing activity.

Advantages of tablets over liquids include ease of portability and administration. It might be appropriate for the patient to have both; the liquid could be taken before and after working hours, while the tablets could be taken during the day for convenience

Tablets should not be swallowed whole; **they should be chewed to initiate disintegration** or sucked to provide a relatively slow but sustained delivery of antacid to the stomach.

Management of GERD

3-Antacids Interactions:

A-Antacids can affect the **absorption of a number of drugs** (via chelation and adsorption). This interactions can usually be avoided when potentially interacting drugs are **separated by at least 2 hours**.

B- Antacids also **interact with enteric-coated tablets**, **capsules and granules**. These products are formulated to resist gastric acid and dissolve in the more alkaline medium of the duodenum, releasing the drug there. **Enteric coatings may be disrupted prematurely in the presence of antacids**, causing unwanted release of the drug in the stomach

4-Side effects of antacids

A-AL-containing antacids tend to be constipating. Mg-containing antacids tend to cause osmotic diarrhea and are useful in patients who are slightly constipated.

B-Antacids containing sod. Bicarbonate should be avoided in patients if sodium intake should be restricted (e.g. in patient with heart failure, hypertension,…..) and during pregnancy.

C-Calcium carbonate: It acts quickly, has a prolonged action and is a potent neutralizer of acid. It can cause acid rebound and, if taken over long periods at high doses, can cause hypercalcaemia and so should not be recommended for long-term use.

Acid rebound is a condition in which the stomach produces even more acid after the consumption of foods and drinks.

B-Alginates (Gaviscon ®):

Alginate-containing antacids form a raft that sits on the surface of the stomach contents to reduce reflux and protect the oesophageal mucosa. Some alginate-based products contain sodium bicarbonate. Alginate products with low sodium content are useful for the treatment of heartburn in patients on a restricted sodium diet.

Practical points:

1-They are best given after each main meal and before bedtime. Although it may be taken on when-needed basis.

2-They can be given in pregnancy and breastfeeding.

C- Histamine 2 receptor antagonists (H2RA):

1-Cimetidine, Famotidine, Nizatidine, and **Ranitidine** are approved for nonprescription use **for adults and children over 16 years**

Note للاطلاع : On April 1, 2020, FDA decided that all manufacturers of **ranitidine** immediately remove their products from the market (because many lots of ranitidine contained Nnitrosodimethylamine (**NDMA**), a probable human **carcinogen**

الجدول للاطلاع

	Primary Ingredient(s)	Dosage (maximum daily dose)
1	**Cimetidine** 200 mg .	1 tablet with a glass of water (2 tablets*) .
2	**Famotidine** 20 mg .	1 tablet with a glass of water (2 tablets*) .
3	**Tablet containing: Famotidine** 10 mg; **calcium** carbonate 800 mg; **magnesium** hydroxide 165 mg .	Chew and swallow 1 tablet (2 tablets) .
4	**Nizatidine** 75 mg.	1 tablet (2 tablets*) .

if symptoms persist, another tablet should be taken 1 hour later .

2-Onset of symptomatic relief with H2RAs is not as rapid as with antacids, but H2RAs **have a longer duration of effect** .

3-**Tolerance** to the gastric antisecretory effect may develop when H2RAs are taken daily (versus as needed) and may be responsible for diminished efficacy. Therefore, it is **preferable to take an H2RA on an as needed basis rather than regularly**, every day .

4-These agents may be used **at the onset of symptoms or 30–60 minutes before an event** (e.g., meal) in which heartburn is anticipated.

5-The combination H2RA–antacid product (f**amotidine plus magnesium hydroxide and calcium carbonate**] is indicated for patients with postprandial heartburn who have **not premedicated with an H2RA**. This combination product provides quick relief and a longer duration of effect.

6-Self-treatment dosing should be limited **to no more than 2 times a day**.

7-H2RAs are well tolerated and are associated with a low incidence of adverse effects. The most common adverse effects reported are **headache**, **diarrhea**, **constipation**, **dizziness**, and **drowsiness**.

8-**Cimetidine** is associated with a **weak antiandrogenic** effect; accordingly, when taken in **high doses**, it may result in **decreased libido, impotence, or gynecomastia** in **men**

D- Proton pump inhibitors (PPIs):

1-Esomeprazole, omeprazole and pantoprazole can be provided OTC for the relief of heartburn symptoms associated with reflux **in adults aged 18 and over**.

2-Nonprescription PPIs are indicated for the treatment of frequent heartburn, defined as the **occurrence of symptoms 2 or more days a week**

الجدول للاطلاع

United kingdom	**Omeprazole** (10 mg tablet), **esomeprazole** (20 mg tablet) and Pantoprazole (20 mg tablet) .
USA	**Omeprazole** (20 mg tablet)**, Lansoprazole** (15 mg capsule) and **esomeprazole** (20 mg capsule) .

3-A single treatment can last up to 24 h or more. The tablets or capsules should be **swallowed whole with plenty of liquid prior to a meal**. It is important that the tablets are **not crushed or chewed**.

4- PPIs **are most effective when taken 30–60 minutes before a meal**, preferably before **breakfast**.

5-It may take a day or so for them to start being fully effective (**complete relief may take 1–4 days**). During this period, a patient with ongoing symptoms **may need to take a concomitant antacid**.

6-OTC treatment can be taken **for up to 2 weeks**, and the patient **can stop it before the said period if they are symptom free**. The frequency of use should be no greater than once every 4 months .

7-PPIs should not be taken (**as an OTC**) during pregnancy or while breastfeeding. **Headache**, **nausea** and occasional **vomiting** are reported. **Diarrhea** is a common side effect, and constipation is sometimes seen.

8-**Clopidogrel**, a prodrug, is converted to its active metabolite via the CYP2C19 and CYP3A4 enzymes. Inhibition of CYP2C19 by PPIs, **specifically omeprazole**, may possibly **decrease the effectiveness of clopidogrel**. For patients on clopidogrel, using **an alternative acid suppression agent**, such as an **H2RA**, or a **PPI other than omeprazole and esomeprazole** may be an acceptable alternative if there are concerns

Indigestion

Indigestion (dyspepsia) is upper abdominal discomfort or pain often related to eating, it may be accompanied by symptoms such as nausea, fullness in the upper abdomen or belching.

Many patients use the terms indigestion and heartburn interchangeably. However, Heartburn should not be confused with dyspepsia. The discomfort of dyspepsia is variably described as a pain, distension, or feeling of fullness, but is generally not burning in nature.

Significance of questions and answers

1-Age

Indigestion is rare in children, who should be referred to the doctor. Be cautious when dealing with first-time indigestion in patients aged 45 years or over and refer for a diagnosis.

2-Symptoms

The symptoms of typical indigestion include poorly localized upper abdominal discomfort, which may be brought on by particular foods, excess food, or medication (e.g. aspirin).

3-Duration/previous history

Indigestion that is persistent or recurrent should be referred to the doctor. Any patient with a previous history of the symptom which has not responded to treatment, or which has worsened, should be referred.

4-Diet and Smoking habit Fatty foods and alcohol can cause indigestion, aggravate ulcers and precipitate biliary colic. Smoking predisposes to, and may cause, indigestion and ulcers. The pharmacist is in a good position to offer advice on smoking cessation, perhaps with a recommendation to use nicotine replacement therapy

5-Details of pain/associated symptoms

A few medical conditions that may present as indigestion described below:

A-Ulcer

Ulcers may occur in the stomach (gastric ulcer) or in the first part of the small intestine (duodenal ulcer).

Typically the pain of a duodenal ulcer is localized to the upper abdomen, slightly to the right of the midline. It is often possible to point to the site of pain with a single finger. The pain is most likely to occur when the stomach is empty, especially at night. It is relieved by food and antacids. The pain of a gastric ulcer is

in the same area but less well localized. It is often aggravated by food and may be associated with nausea and vomiting.

B-Gallstones

Single or multiple stones can become temporarily stuck in the opening to the bile duct as the gall bladder contracts. This causes severe pain (biliary colic) in the upper abdomen below the right rib margin. Biliary colic may be precipitated by a fatty meal.

C-Gastro-Esophageal reflux

The symptoms are typically described as heartburn arising in the upper abdomen passing upwards behind the breastbone. It is often precipitated by a large meal or by bending and lying down.

D-Irritable bowel syndrome

Irritable bowel syndrome (IBS) is a common condition in which symptoms are caused by colon spasm. There is usually an alteration in bowel habit, often with alternating constipation and diarrhea. The diarrhea is typically worse first thing in the morning.

E-Myocardial ischemia

The pain is likely to be precipitated by exercise or exertion and it radiates to jaw, neck, shoulder, arm. Not all cases of angina have classical presentation. Patients can complain of dyspepsia-like symptoms and feel generally unwell (Atypical angina). These symptoms might be brought on by a heavy meal. In such cases antacids will fail to relieve symptoms and referral is needed

F-Appendicitis

Starts centrally and radiates to right iliac fossa after some time.

G-More serious disorders

Persisting upper abdominal pain, especially when associated with anorexia and unexplained weight loss, may be due to an underlying cancer of the stomach or pancreas. Ulcers sometimes start bleeding, which may present with blood in the

vomit (hematemesis) or in the stool (melaena). In the latter the stool becomes tarry and black. Urgent referral is necessary.

6-Medication

A-Medicines already tried: Anyone who has tried one or more appropriate treatments without improvement or whose initial improvement in symptoms is not maintained should see the Doctor.

B-Other medicines being taken:

Gastrointestinal (GI) side-effects can be caused by many drugs. NSAIDs have been implicated in the causation of ulcers and bleeding ulcers. Sometimes these drugs cause indigestion. Elderly patients are particularly prone to such problems and pharmacists should bear this in mind. Severe or prolonged indigestion in any patient taking an NSAID is an indication for referral.

Summary of Symptoms and circumstances for referral:

1-Age over 45 years if symptoms develop for first time.

2-Symptoms are persistent or recurrent.

3-Pain is severe.

4-Blood in vomit or stool.

5-Persistent vomiting.

6-Treatment has failed.

7-Adverse drug reaction is suspected.

8-Associated weight loss.

9-Children.

10- Indigestion between meals or at night.

11-Pain radiating from central or epigastric areas.

Treatment timescale If symptoms have not improved within 5 days, the patient should see the doctor.

Management Smoking, alcohol and fatty meals can all aggravate symptoms, so the pharmacist can advise appropriately.

A-Antacids: as in GERD

B-Famotidine and ranitidine: as in GERD.

C-Dimeticone (dimethicone): Dimeticone is sometimes added to antacid formulations for its defoaming properties. Theoretically, it reduces surface tension and allows easier elimination of gas from the gut by passing flatus or belching. Evidence of benefit is uncertain.

D-Domperidone

Domperidone 10 mg previously was used as an OTC for the treatment of postprandial stomach symptoms of excessive fullness, nausea, epigastric bloating and belching, occasionally accompanied by epigastric discomfort and heartburn. It increases the rate of gastric emptying, and also increases the strength of contraction of the esophageal sphincter. Unfortunately in 2014 domperidone was reclassified back to prescription-only status over fears over its potential cardiac side effects.

Skin conditions: Acne, Scabies, Psoriasis

ACNE

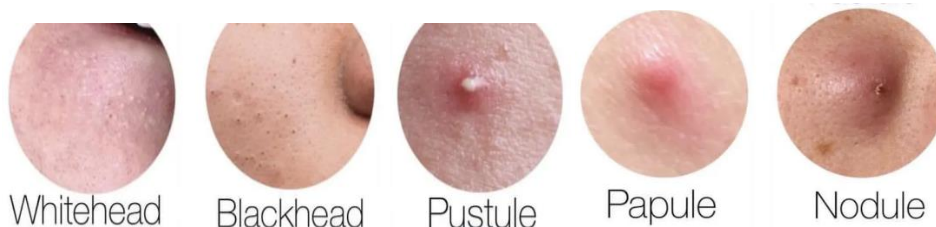
Acne (or acne vulgaris) involves blockage or inflammation of the hair follicles and accompanying sebaceous gland. It is a common condition in young people. It is not usually serious and resolves in most patients by the age of 25. However, it can have a significant psychological impact as it affects young people at a stage in their lives when they are especially sensitive about their appearance.

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. Hormonal changes during puberty, especially the production of androgens, are involved in the causation of acne in teenagers. Increased keratin and sebum production are important contributory factors; the increased amount of keratin leads to blockages of the follicles and the formation of microcomedones (initial stage of acne).
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** بثور (raised reddened area filled with pus) or **nodule**)] .
3. Excess sebum causes an overgrowth of bacteria, particularly **Cutibacterium acnes**, which sets off an inflammatory reaction and is involved in the development of inflammatory lesions. Acne can thus be non-inflammatory or inflammatory in nature.



Patient assessment with acne

Age

1. Acne is extremely rare in young children and babies, and any such cases should be referred for investigation, since an androgen-secreting tumour 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).

Severity:

1- **Only mild acne can be managed by the pharmacist using OTC products**, moderate and severe acne should be **referred**.

2- **Mild acne** predominantly consists of non-inflammatory comedones. **Moderate acne** consists of a mixture of non-inflammatory comedones and inflammatory papules and pustules. **Severe acne** is characterized by the presence of widespread nodules and cysts, as well as inflammatory papules and pustules.

Affected areas

1-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.

2-Rosacea is a skin condition that is sometimes confused with acne. **Only the face is affected.** Rosacea has characteristic features of reddening, papules and pustules. It may be associated with recurrent episodes of facial **flushing and telangiectasia** . It is normally seen in patients **between 30 and 50 years of age** and is more common in women than in men. comedones are not present . Patients with suspected ***rosacea*** required referral

Occupation:

Oils and greases used at work can precipitate acne and required referral.

Medication

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

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 time scale: a patient with mild acne that has not responded to treatment within 8 weeks should be referred to the doctors.

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** .

Management:

Nondrug therapy:

1. **Washing the skin with a soap and rinsed off with water** before applying *benzoyl peroxide* can help by reducing the amount of sebum on the skin.
2. **The role of diet in acne remains poorly understood**, but emerging data suggest that **high glycaemic index (GI) diets** (which may include sweets or chocolate) may exacerbate acne.
3. **Avoid picking and squeezing** spots and blackheads, as this may increase the risk of scarring .
4. **Avoid over-cleaning the skin** (which may cause dryness and irritation) – acne is not caused by poor hygiene

Drug therapy:

A-Benzoyl peroxide (2.5%, 5%, and 10% gels, lotion, cream …): which is the first line OTC treatment of acne. Its bactericide for acne vulgaris and keratolytic.

Administration guidelines for Benzoyl peroxide

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

2-**Application is once or twice a day** (once daily is usually sufficient) thereafter.

3-Wash off the application of benzoyl peroxide **after 15 min initially**, and increase exposure in increments of 15 min until the drug can be tolerated for 2 h or more

4-**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.

4-One approach to minimize reddening and skin soreness is to **begin with the lowest strength preparation** and to apply the cream, lotion or gel **sparingly and infrequently during the first week of treatment**.

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

6-Bleaching: Warning should be given that **benzoyl peroxide can bleach clothing and bedding .**

7- 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.