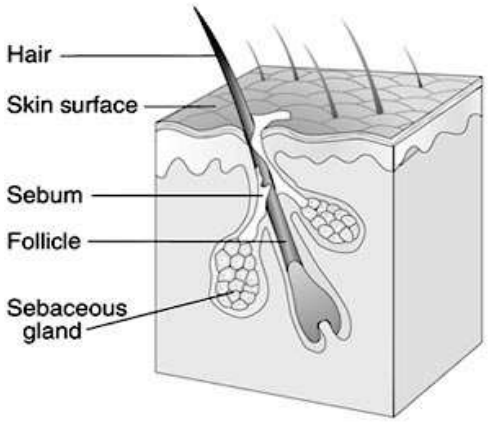
صيدلة سريرية
م.د : ضياء جبار

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 [(1)].

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 [(2)].



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 [(1)].

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** [(5)].

2-A microcomedone can develop into a non-inflammatory lesion (comedone) (**comedone:** a mass of sebum and keratin), which may be open (**blackhead**) [(5)] (as the keratinous material darkens in contact with the air [(1)]) or closed (**whitehead**), or into an inflammatory lesion [**papule** (raised reddened area on the skin), **pustule** (raised reddened area filled with pus) or **nodule**)] [(5)].

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 [(5)].

Patient assessment with acne

1-Age [(5)]:

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

B-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).

2-Severity [3, 6]:

Only mild acne can be managed by the pharmacist using OTC products, moderate and severe acne should be ***referred*** because current OTC treatment is unlikely to help.

A-Mild acne: A patient with mild acne has **less than 10 open** and closed comedones (whiteheads and blackheads) normally **confined to the face**. **No papules**, **pustules**, or **scaring** is present.

B-Moderate acne: A patient with moderate acne has **many papules or pustules that are not confined to the face** .lesion are often painful and there is a real **possibility of scaring**.

C-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.

Circumstances for referral
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***.

3-Affected areas

In acne, affected areas may include the face, neck, centre of the chest, upper back and shoulders, i.e. all areas with large numbers of sebaceous glands [5].

Rosacea is a skin condition that is sometimes confused with acne [5]. It is a common chronic inflammatory disorder of the **facial pilosebaceous** units, coupled with an increased reactivity of capillaries leading to flushing and telangiectasia [8]

(rosacea has characteristic features of reddening (**flushing**), papules and pustules) [5]. In rosacea there are **no comedones**. Age of Onset of rosacea **30 to 50 years**; peak incidence between 40 and 50 years [8]. Patients with suspected ***rosacea***----------referral [5].

4-Occupation:

Acne is commonly associated with **long-term contact with oils** [3]. (If so, counsel patient about the avoidance of the exacerbating factors [6]. -------referral [3]

5-Medication [5]:

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

B-**Drug-induced acne** (e.g. phenytoin, oral contraceptives, rifampicin, corticosteroid (topical or systemic),……)-------referral.

Treatment timescale:

A patient with mild acne, which has not responded to treatment **within 8 weeks**, should be referred to the doctor [5].

Management:

A-Nondrug therapy:

1-**Twice daily washing with warm water and soap** to remove excess sebum and improve skin appearance [2].

2-***Manipulatioin*** (e.g. squeezing or picking) of acne lesion ***should be discouraged*** strongly.
Note: there is no evidence to link diet with acne [4]

B-Drug therapy:

1-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 [5]:

1-At first, **benzoyl peroxide** is very likely to produce **reddening** and **soreness** of the **skin**, and patients should be warned of this (see 'Practical points' 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-**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.

4-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 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 sparingly and infrequently during the first week of treatment (**further reading 1**).

7-Sensitisation: Occasionally, **sensitisation** 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** (**further reading 2**).

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 [5].

2- Adapalene (Deferin® 0.1 gel) [8-10]

1-Retinoids are highly effective in the treatment of acne, retinoids stimulate epithelial cell turnover and aid in unclogging blocked pores. Thus, the retinoid family are highly active peelers. Available topical retinoids include tretinoin, adapalene, and tazarotene . 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-It applied once daily, apply thinly in the evening. However, if there is no improvement in 3 months of daily use, patients should stop using the product and consult a physician.

3-Because adapalene is photosensitive, patients should use sunscreen and also avoid prolonged exposure to the sun.

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 [5].

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.

References:

1- Nathan A. fasttrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press; 2008.
2- Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press; 2010.
3- Community Pharmacy. Symptoms, Diagnosis and Treatment. By Paul Rutter.2004.
4- Mary Anne koda-kimble (ed.), Applied Therapeutics: The clinical use of drugs, 9th ed., Copyright ©2009 Lippincott Williams & Wilkins.
5- Symptoms in the pharmacy . A guide to the managements of common illness. 6th edition By Alison Blenkinsopp and Paul Paxton .2009.
6- Handbook of Non-prescription drugs 2002.
7-Fitzpatrick : The Color Atlas and Synopsis of Clinical Dermatology.5th edition.
Pharmacy. Pharmaceutical Press; 2008.
8-pharmacotherapy principle and practice.. 2016.
9- Pharmacotherapy a Pathophysiologic approach. 2014
10-FDA.

Further readings

1-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.
2- 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 minimise damage to good clothes. Contact between *benzoyl peroxide* and the eyes, mouth and other mucous membranes should be avoided.

Major reclassification to an OTC status in UK

ملاحظة : تمت هذه التحويلات في بريطانيا فقط ولكننا أوردنا هذه المحاضرة لأهمية هذا الموضوع التأسيسية أولا ولاطلاع طلبتنا على ما يستجد في ساحة الصيدلة من مواضيع وبيان حالة الحراك المستمر الذي تشهده هذه الساحة لتحويل المزيد من الأدوية إلى OTC.

A-Chlamydia (Chlamydia trachomatis infection)

Background

1-Chlamydia is a sexually transmitted infection (STI) caused by the bacterium *Chlamydia trachomatis*. It is the most commonly diagnosed STI and the infection rates are increasing [(1)] (in part due to being **asymptomatic**) [(2)], particularly in people under 25 years of age [(1)].

2-In women, chlamydia is the most common cause of pelvic inflammatory disease (PID), which can result in **ectopic pregnancy**, **infertility** and **chronic pelvic pain** [(1)].

Note: The term pelvic inflammatory disease (PID) commonly refers to a variety of inflammatory disorders of the upper female reproductive tract (mainly the fallopian tubes) [(3)].

3-In men, Chlamydia can cause **sperm damage**, **infertility** and serious conditions, including sexually acquired **reactive arthritis** (SARA) [(1)].

4-Chlamydia represents an insidious threat to the reproductive health of young women and men as the infection is asymptomatic in up to 80% of cases [(1)].

Treatment

Azithromycin

1-Azithromycin is a macrolide antibacterial, recommended as a first-line therapy for the treatment of uncomplicated C. trachomatis infection [(1)].

2- Azithromycin was reclassified in UK as an OTC in 2008 [2]. It is licensed for supply without prescription for men and women **aged 16 years and over** who are **asymptomatic** and who **have tested positive for genital C. trachomatis infection** [1].

3-The treatment is given orally as a **single 1 g dose** (2*500 mg tablets) and should be taken as soon as possible after positive diagnosis [1].

4-Azithromycin is the first oral antibiotic to be reclassified as an OTC, and only from **pharmacies registered to provide testing kits and courses of treatment** [1].

5-Diagnosis is made by **nucleic acid amplification test** (NAAT), which detects the presence of C. trachomatis nucleic acid **in a urine sample**. (The patient buys a test kit from the pharmacy and then posts the test to a lab to carry out the analysis) [1].

6-A test should not be carried out until **at least 2 weeks after suspected infection has occurred** (after unprotected sex), in order to allow bacterial nucleic acid to reach a detectable level; the test is then 90–95% sensitive [1].
7-The patient receives the test result from the laboratory and, if positive, takes the result to the pharmacy to obtain the treatment [1].

8-A course of treatment can also be supplied to an **asymptomatic sexual partner without a test** [1].

Contraindications

OTC azithromycin cannot be supplied to individuals who:
* have **symptomatic** infection **(further reading 1)**
* are **under 16 years** of age
* are **pregnant** or **breastfeeding**
* have a **history of heart disease**
* are **taking medicines with significant interactions with azithromycin (further reading 2)** [1].

Side-effects

Side effects that might be experienced are **GI upset**, namely nausea, vomiting and abdominal discomfort [2].

Product

* Clamelle®: Azithromycin 500 mg Tablets and Chlamydia Test Kit (Actavis) [1].

Further readings

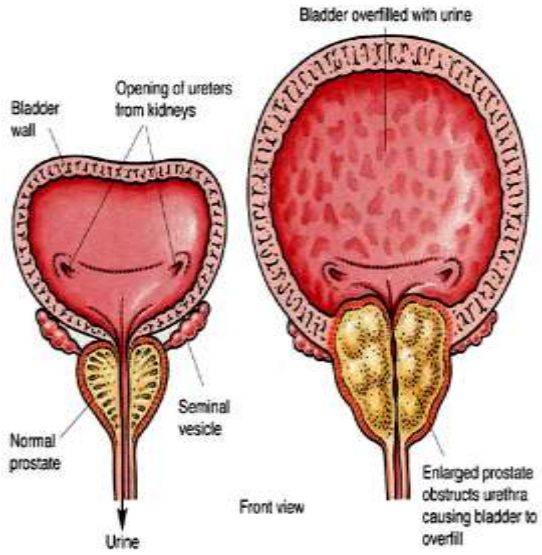
1-In women they most commonly include mucopurulent or purulent discharge vaginal discharge, vaginal bleeding (including bleeding after intercourse), and dysuria. In men, symptoms may include penile discharge, pruritus, and dysuria [4].

2-Including ciclosporin, digoxin, disopyramide, ergotamine, rifabutin, theophylline, warfarin and other coumarin anticoagulants [1].

References

1-Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press; 2010.
2-Community Pharmacy. Symptoms, Diagnosis and Treatment. By Paul Rutter.2011
3- Mary Anne koda-kimble (ed.), Applied Therapeutics: The clinical use of drugs, 9th ed., Copyright ©2009 Lippincott Williams & Wilkins.
4-Ranit M. et al.Chlamydia Trachomatis Infections: Screening, Diagnosis, and Management. American Family Physician. Volume 86, Number 12. December 15, 2012. Pages:1127-1132.

B-Benign prostatic hyperplasia (BPH)



1-The prostate is a gland that surrounds the urethra below the bladder. It secretes a fluid that is expelled with the seminal fluid and improves the motility, prolongs the survival of sperm. It also has a bactericidal effect [1].

2-BPH is defined as benign enlargement of the prostate gland. Prevalence is estimated at **one in four men over the age of 40 years** and incidence increases markedly with age [1].

3-The cause of BPH is unknown but probably involves hormonal changes associated with aging [1].

Clinical Manifestations

In BPH, the enlarged prostate compresses the urethra, thus obstructing urine outflow [1]. Symptoms of BPH are classified as **obstructive** or **irritative**.

A-Obstructive symptoms: ***result from failure of the urinary bladder to empty urine*** [2] due to urethral compression from prostate gland hyperplasia [3]. It include:
1-**Hesitancy**: hesitancy is difficulty in initiating urination. (because the bladder detrusor muscle taking a longer time to generate pressure to overcome urethral resistance) [3].
2-**Decrease in urinary force**.
3-Occasional **midstream stoppage**.
Urinary stream intermittency is caused by the inability of the bladder detrusor muscle to maintain the pressure until the end of voiding [3].
4-Postvoiding **dribbling**.
5-Feeling of **incomplete bladder emptying** [3].

B-Irritative symptoms: ***result from the failure of the urinary bladder to store urine*** [2].
The patient complains of :
1-**Nocturia** approximately four to five times a night.
2-**Daytime urinary frequency** of eight to ten times a day.
Incomplete emptying of the bladder results in shorter intervals between voiding, explaining the complaint of frequency [3].

The symptoms of urinary frequency are more pronounced at night because cortical inhibitions are lessened and **bladder sphincter tone is more relaxed during sleep** [3].

Treatment

Tamsulosin, an alpha1-adrenergic blocker, was reclassified from POM to OTC in March 2010, for the treatment functional symptoms of BPH in men between the ages of 45 and 75 years [1]. This represents the first UK OTC medicine to **treat** a chronic condition. This reclassification was made due to the fact that the majority of men with BPH do not consult their doctors when they experiencing BPH symptoms [4].

A-Mode of action: In the prostate, bladder neck and urethra, the alpha-1A receptor is predominant. Tamsulosin is selective drug for alpha-1A receptors, so it relax smooth muscle to improve outflow and symptoms of BPH [1].

B-Adverse reactions: Dizziness is the most commonly reported side effect (about 1.3% of patients) [2].

C-Conditions for supply of tamsulosin without prescription

1-Tamsulosin is available as capsules containing tamsulosin hydrochloride 0.4 mg; the dose is one capsule daily (strength and dose are the same as the POM version) [1].

2-On initial request from a man for supply of the product or advice on lower urinary tract symptoms, the pharmacist assesses the severity of symptoms.(**further reading 1**) [1, 4].

Symptoms-check questionnaire	This incorporates a quality of life score and the International Prostate Symptom Score. Low scores on both scales suggest mild symptoms and a good quality of life and tamsulosin would not be appropriate

[See the International Prostate Symptom Score (I-PSS) at last page]

3-If treatment is deemed appropriate an initial 2-week supply is made, at the end of which the situation is reviewed by the pharmacist and, if symptoms have improved and the drug is well tolerated, a further supply for four weeks is made. If his symptoms are not relieved -------referral [1].

4-**After six week**s, tamsulosin will only be supplied if a doctor has carried out a clinical assessment of the patient to confirm that pharmacy supply continues to be suitable [1].

4-Conditions that required referral [1].

Referral must be made to a physician if a man reports any of the following:

* Aged **less than 45 or more than 75 years**
* Any age if urinary symptoms are associated with any of the following:
  - **_ pain on urination**
  - **_ blood** in urine
  - **_ cloudy urine**

_ **fever**
_ **excessive thirst**

* Currently receiving **prescription medications for BPH**
* Currently receiving **alpha1 blockers for the treatment of hypertension**
* **History** of **orthostatic hypotension**, **heart**, **liver** or **kidney** disease
* **Prostate surgery** in the medical history
* planned **eye surgery for cataract** .(**further reading 1**).

Further reading

1-Using a questionnaire based on the International Prostate Symptoms Score (IPSS) questionnaire developed by the British Association of Urological Surgeons), and other factors [(1)].

2-Tamsulosin can cause profound loss of tone of the dilator muscle of the iris, increasing the technical difficulty of cataract surgery for patients on the drug [(1)].

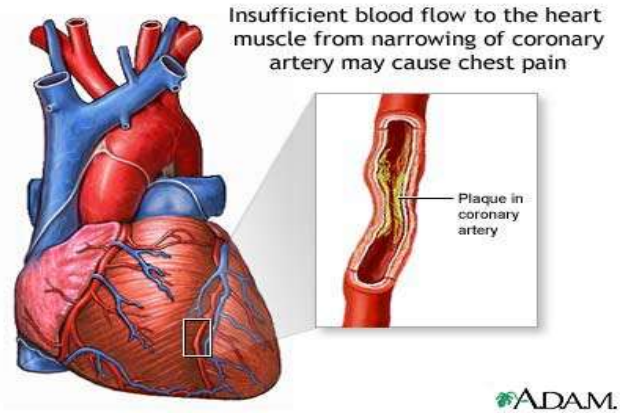
References

1-Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press; 2010.
2-Marie A. Chisholm-Burns .Pharmacotherapy Principles & Practice. 3rd edition 2013 by The McGraw-Hill Companies.
3-Mary Anne koda-kimble (ed.), Applied Therapeutics: The clinical use of drugs, 10th ed., Copyright ©2013 Lippincott Williams & Wilkins.
4-Community Pharmacy. Symptoms, Diagnosis and Treatment. By Paul Rutter.2011

C-Coronary heart disease

Background:

1-Coronary heart disease (CHD) is one of the most common cause of premature death [(1)]. There is a correlation between an individual's serum cholesterol level, (specifically low density lipoprotein (LDL) cholesterol) and the risk of developing CHD. Adults may benefit from reducing their serum cholesterol level **whatever the baseline level** [(1)].



2-Following reclassification from POM to OTC in 2004, simvastatin 10 mg is now available for sale from pharmacies for individuals at moderate risk of CHD [(1)].

3-The deregulation of Simvastatin was met with strong resistance from the medical profession und unenthusiastically received by community pharmacists. Consequently, sale of an OTC Simvastatin was low, however, it is still available without prescription [(2)].

Indications and licensing restrictions

Simvastatin 10mg is suitable to reduce the risk of a first major coronary events in individuals at moderate risk of CHD [(2)]. The following individuals are likely to be at moderate risk:

1-Men aged 55-70 with or without risk factors.
2-Men aged 45-54, with one or more risk factors.
3-Post-menopausal women aged 55-70, with one or more risk factors.

The Risk factors for assessing moderate CHD risk :
1-**Smoker** : Currently or within the last five years.
2-**Family history of Heart disease :** Father or brother had a heart attack or angina before age 55; mother or sister had a heart attack or angina before age 65.
3-**Overweight /Obese**: body mass index more than 25 kg/m^2.

If none of the three categories applies, the individual may be at a lower risk of CHD and OTC simvastatin is not indicated [(1)].

Note: Cholesterol testing is not a prerequisite to selling simvastatin; however, it is good practice to offer a cholesterol test [(1)].

OTC dosage of Simvastatin

Simvastatin is given as a single 10 mg in the evening and should be taken regularly on a long-term basis [(1)].

ملاحظة : هناك تفاصيل أخرى كثيرة متعلقة باستعمال السمفاستاتين مذكورة في المصدر رقم 1 أدناه لم نذكرها لأنها خارج أهداف المحاضرة .

References

1-Royal Pharmaceutical Society of Great Britain. Practice Guidance: OTC simvastatin .pharmaceutical Journal . July 2004 (Vol 273) 169-170.
2- Community Pharmacy. Symptoms, Diagnosis and Treatment. By Paul Rutter.2011.

للاطلاع

International Prostate Symptom Score (I-PSS)

Patient Name: _____ **Date of birth:** _____ **Date completed** _____

In the past month:	Not at All	Less than 1 in 5 Times	Less than Half the Time	About Half the Time	More than Half the Time	Almost Always	Your score
1. Incomplete Emptying How often have you had the sensation of not emptying your bladder?	0	1	2	3	4	5	
2. Frequency How often have you had to urinate less than every two hours?	0	1	2	3	4	5	
3. Intermittency How often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5	
4. Urgency How often have you found it difficult to postpone urination?	0	1	2	3	4	5	
5. Weak Stream How often have you had a weak urinary stream?	0	1	2	3	4	5	
6. Straining How often have you had to strain to start urination?	0	1	2	3	4	5	
	None	**1 Time**	**2 Times**	**3 Times**	**4 Times**	**5 Times**	
7. Nocturia How many times did you typically get up at night to urinate?	0	1	2	3	4	5	
Total I-PSS Score							

Score: 1-7: *Mild* 8-19: *Moderate* 20-35: *Severe*

Quality of Life Due to Urinary Symptoms	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?	**0**	**1**	**2**	**3**	**4**	**5**	**6**