PULSE

The pulse rate should be between 60 and 1OO beats per minute when an adult patient is lying quietly in bed. Young children may have higher pulse rates, and athletes and elderly adults may have slower rates.

PULSE

THE ARTERIAL PULSE is felt by • compressing an artery against a bone. The first pulse to be examined is the right radial pulse. The timings of the left radial and femoral pulses are then compared with that of the right radial pulse. Delayed femoral pulsation occurs because of a proximal stenosis, particularly of the .(coarctation aorta)

- A heart rate of more than 100/minute is called a tachycardia
- and a heart rate of less than 60/minute is called a bradycardia.

:There are three main mechanisms of tachycardia

*Increased automaticity-the tachycardia is produced by repeated spontaneous depolarisation of an .ectopic focus, often in response to catecholamines

*Re-entry-the tachycardia is initiated by an ectopic Most .(beat and sustained by a re-entry circuit .tachyarrhythmias are due to re-entry

*A third mechanism, triggered activity, can cause ventricular arrhythmias in patients with coronary heart disease. This is a form of secondary depolarisation arising from an incompletely .repolarised cell membrane

:Bradycardia may be due to

*(reduced automaticity (e.g. sinus bradycardia

*blocked or abnormally slow conduction (e.g. atrioventricular block

SINUS ARRHYTHMIA

- Phasic alteration of the heart rate during respiration (the sinus rate increases during inspiration and slows during expiration) is a consequence of normal parasympathetic nervous system activity and can be pronounced in children. Absence of this normal variation in heart rate with breathing or with changes in posture may be a feature of autonomic neuropathy

SINUS BRADYCARDIA

- A sinus rate of less than 60/min may occur in healthy people at rest and is a common .finding in athletes. Some pathological Asymptomatic sinus bradycardia requires no treatment. Symptomatic sinus bradycardia usually responds to intravenous atropine 0.6-1.2 mg

SINUS TACHYCARDIA

This is defined as a sinus rate of more than 100/min, and is usually due to an increase in sympathetic activity associated with exercise, emotion, pregnancy or

- Young adults can produce a rapid sinus rate, up to 200/min, during intense exercise

Causes of Sinus bradycardia

- Myocardial infarction [Inf. Wall]
- (Sinus node disease (sick sinus syndrome
- Hypothermia
- Hypothyroidism
- Cholestatic jaundice
- Raised intracranial pressure
- Drugs, e.g. β-blocker, digoxin, verapamil

Causes of Sinus tachycardia

- Anxiety
- Fever
- Anaemia
- (Heart failure (bronchodilators
- Thyrotoxicosis
- Phaeochromocytoma
- Drugs, e.g. β-adrenoceptor agonists
- MI(anterior ,

RATE
RHYTHM
VOLUME
CHARACTER

- traeh eht fo ssenerawa na RHYTHM :*palpitation is*
nehw yllaicepse snoitatiplap fo nrettap ehT .taeb
- correlated to the pulse may help narrow the
- :differential diagnosis
- rapid, regular palpitations
- are noted with supraventricular tachycardia
- ؛or ventricular tachycardia
- rapid, irregular palpitations
- ؛are noted with a trial fibrillation
- skipped beats
- are noted with premature atria or ventricular contractions

VOLUME :

- low (arterio scleroses ,dehdration ,shock ….
- High or good volume (pregnancy thyrotoxicosis ,a v fistula ,COPD,……

CHARACTER

Temperature

- Body temperature is controlled by the hypothalamus

- A normal body temperature is ordinarily maintained, despite environmental variations, because the hypothalamic thermoregulatory center balances the excess heat production derived from metabolic activity in muscle and the liver with heat dissipation from the skin and lungs. According to studies of healthy individuals 18–40 years of age, the mean oral (temperature is 36.8° ± 0.4°C (98.2° ± 0.7°F

Physiological variations in body temperature

1-Normally, the body temp. undergoes a regular circadian fluctuation of about 0.6^0C being lowest in the morning & highest in the evening. .١

2-In Woman there is a monthly cycle of temp. variation characterized by a rise in basal temp. of about 0.5^0 C at the time of ovulation &during the second half of the menstrual cycle.A similar rise occurs during the first trimester of pregnancy. .٢

3. In children temp. regulation is less precise and they may normally have a temp. that is 0.5^0C above the normal for adults.

4. During exercise, excess heat is produced in the body and the rectal temp. can normally rise to as high as 40^0C .

5. Emotional excitement slightly increases the body temp. probably due to unconscious tensing of muscles.

6. When the metabolic rate is high the body temp. is chronically elevated by as much as 0.5^0C and vice verse.

- Rectal temperatures are generally 0.5°C (0.7°F) higher than oral readings
- Axillary temp. are lowere than oral reading about 0.5c
- .

- *FEVER .A.M.temperature of >37.2°C .and mean P.M.temperature of >37.7°C (>99.9°F)* temperature variation is typically 0.5°C (0.9°F

- fever of >41.5°C (>106.7°F) is called .*hyperpyrexia*

Hyperthermia

- is characterized by an uncontrolled increase in body temperature that exceeds the body's ability to lose heat.

Causes of Hyperthermia Syndromes

1-Heat stroke

- Exertional: Exercise in higher-than-normal heat and/or humidity
- Nonexertional: Anticholinergics, including antihistamines; antiparkinsonian drugs; diuretics; phenothiazines

2-Drug-Induced Hyperthermia

Amphetamines, cocaine, phencyclidine salicylates, lithium, anticholinergics, sympathomimetics

3-Neuroleptic Malignant Syndrome

- **Phenothiazines; butyrophenones, including haloperidol and bromperidol; fluoxetine; loxapine; tricyclic dibenzodiazepines; metoclopramide; domperidone; thiothixene; molindone; withdrawal of dopaminergic agents**

4-Malignant Hyperthermia

Inhalational anesthetics, succinylcholine

5-Endocrinopathy

Thyrotoxicosis, pheochromocytoma

6-Central Nervous System Damage

Cerebral hemorrhage, status epilepticus, hypothalamic injury

7-Serotonin Syndrome

Hypothermia :

- It is defined as core body temperature of less than 35^0C.
- Hypothermia is caused by exposure to cold especially when associated with other conditions such as advanced age, decreased metabolic rate, CNS diseases, malnutrition, drugs as alcohol and paralysis.
- Effects of hypothermia on the body include depressed mental status followed by loss of consciousness, shivering which stops below 32^0C, very slow respiration, low heart rate, decreased blood pressure and arrhythmias .