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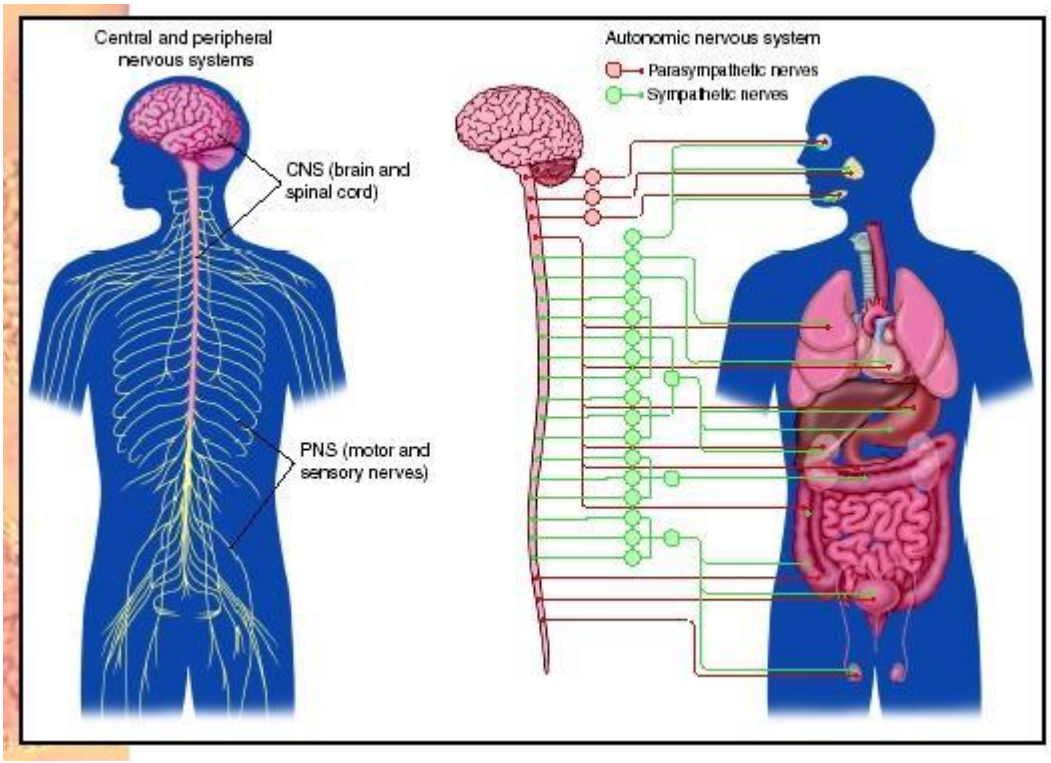
Lec:2

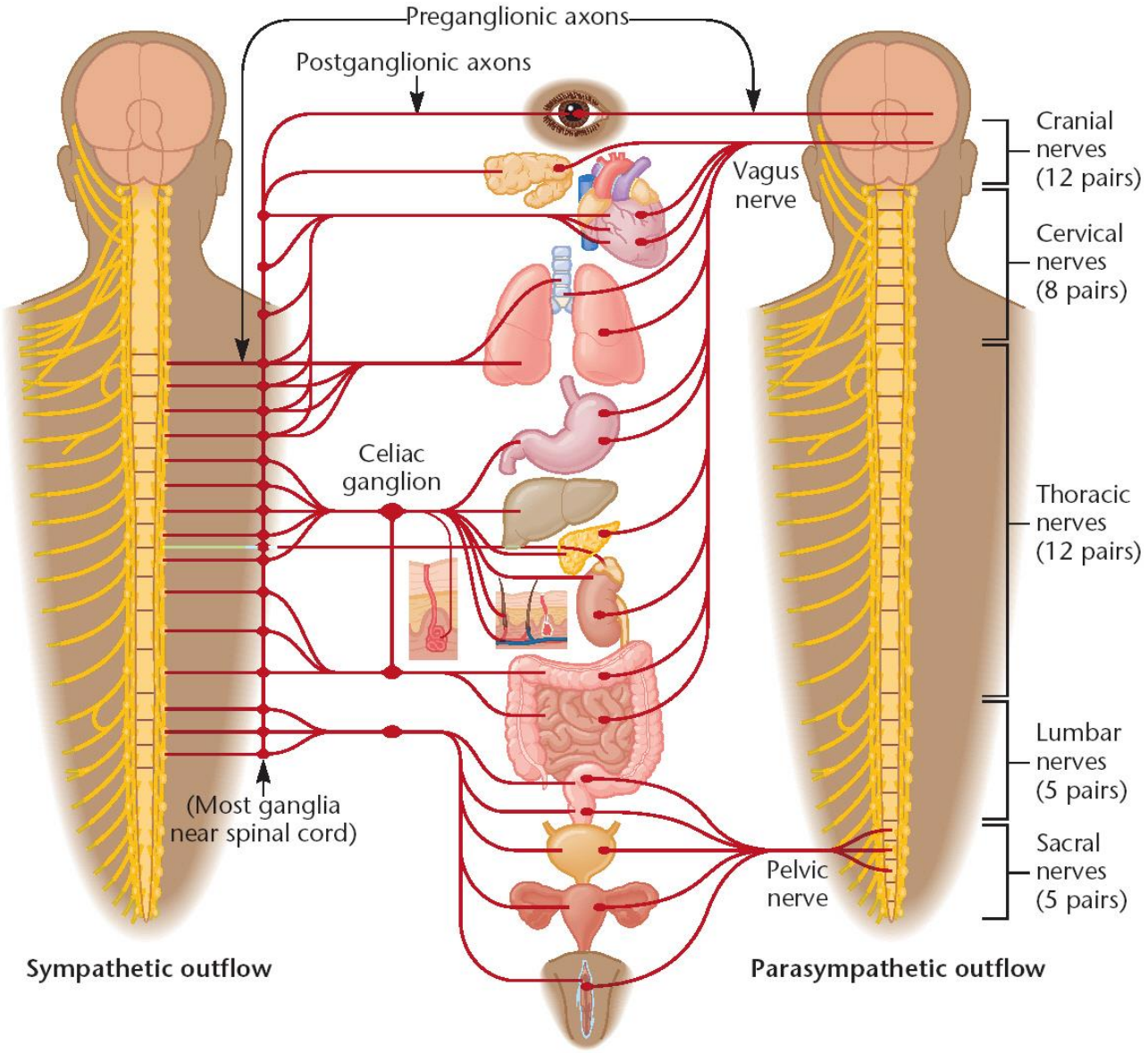
Pharmacology

I-autonomic N.S		II-somatic N.S	
1-central nervous system	2- peripheral nervous system	2a- sympathetic	2b- Para sympathetic



Autonomic N.S:- control involuntary movement like heart smooth muscle

-The nervous impulses are transmitted via chemical substance called chemical transmitted & according to last nerves fiber classify to:-



The autonomic nervous system (ANS) (or visceral nervous system) is the part of the peripheral nervous system that controls homeostasis, that is the constancy of the of tissues in gasses, ions and nutrients.

* It does so mostly by controlling cardiovascular, digestive and respiratory functions, but also salivation, rspiration, diameter of the pupils, urin tion - (the discharge of urine), and erection.

* Many of the activities of the ANS are involuntary. However, breathing, for example, can be in part consciously controlled.

*The ANS is nevertheless a classical term, still widely used throughout the scientific and medical community. Its most useful definition could be: the sensory and motor neurons that innervate the viscera. These neurons form reflex arcs that pass through the lower brainstem or medulla oblongata. This explains that when the central nervous system (CNS) is damaged experimentally or by accident above that level, a vegetative life is still possible, whereby cardiovascular, digestive and respiratory functions are adequately regulated.

Sympathetic nervous system

Diverts blood flow away from the gastro-intestinal (GI) tract and skin via vasoconstriction.
* The lung is not only maintained, but enhanced (by as much as 1200%, in the case of skeletal muscles).
*Dilates bronchioles of the lung, which allows for greater alveolar oxygen exchange.
*Increases heart rate and the contractility of cardiac cells (myocytes)
*providing a mechanism for the enhanced blood flow to skeletal muscles.
*Dilates pupils and relaxes the lens, allowing more light to enter the eye.

Parasympathetic nervous system

Dilates blood vessels leading to the GI tract.
*increasing blood flow. This is important following the consumption of food, due to the greater bolic demands placed on the body by the gut.
*The parasympathetic nervous system can also constrict the bronchiolar diameter when the need for oxygen has diminished.
*During accommodation, the parasympathetic nervous system causes constriction of the pupil and lens.
*The parasympathetic nervous system stimulates salivary gland secretion, and accelerates peristalsis, so, in keeping with the rest and digest functions, appropriate PNS activity mediates digestion of food and indirectly, the absorption of nutrients.
Is also involved in erection of genitals, via the pelvic splanchnic nerves.

Adrenergic agonist:-

Direct	indirect	mixing
Dopamine	Amphetamine	ephedrine
Epinephrine	tyramine	
Pherylephrin		
Terbutalin		

A- Epinephrine interact with alpha and beta receptors

- At low doses beta effect vasodilators
- at high doses alpha effect vasoconstriction

- increase contractility of myocardium so increase cardiac out put
- Causes bronchodilator

*hyperglycemia:-

-increase glucose in blood by increase glycogenlysis in liver (B2 effect)

*lipolysis:-intiates lipolysis it is agonist activity on B-receptor of adipose tissue

Therapeutic uses:-

- Bronchodilator
- Glaucoma
- Anaphylactic shock
- In anesthesia

Adverse effect:-

- Central nervous system disturbance
- Hemorrhage
- Cardiac arrhythmias

.Pulmonary edema

Dopamine: - used in shock stimulate beta-receptor in heart

Dobuttamine:-used in C.H.F so increase cardiac output

Terbutalin and salbutamol

B2 agonist use as bronchodilator

Indirect-acting adrenergic agonists

Cause norepinphrine release from presynaptic terminals

Amphetamine:-

Are C.N.S stimulates used in treat of depression appetite control

Side effect addiction hypertension

Mixed –action adrenergic agonists

Ephedrine

1-release stored nor epinephrine from nerves ending

2- Directly stimulate both alpha & beta receptors

Action:-

1-increase systolic &diastolic blood pressure

2-pruduce bronchodilator

3-mild stimulation of C.N.S

4-treat of asthma& nasal decongestant