ADH + Growth Hormone most important notes

Stimuli for GH release:

1. GHRH from hypothalamus
   ↓
   stimulates anterior pituitary to release GH
2. Hypoglycemia → ↓ low blood glucose
3. Exercise
4. Sleep
5. ↑ High levels of Amino Acids (AA) in blood
6. ↑ increase arginine
7. ↓ free fatty acids in blood

Results of GH release

1. Growth & Development of bones and muscle by protein synthesis ↑
2. lipolysis → ↑ increase FFA in blood to provide energy → insulin Resistance
   - ↑ glucose uptake
   - ↓ gluconeogenesis
3. ↑ Gluconeogenesis : increase production of glucose
4. production of (IGF-1)

ADH = Vasopressin

↓

acts on Kidneys

- ↑ increase water reabsorption
- ↓ reducing urine volume

+

↑ increase blood pressure by contraction of arterioles

↑ more concentrated urine

↓

↓ Decrease plasma osmolarity (low conc. of solutes in blood)

Absence of ADH

1. ↓ reduce water reabsorption
2. ↑ increase urine volume (dilution)
3. ↑ increase plasma osmolarity
4. Diabetes Insipidus

Clinical Case:

Question:
A 45-year-old male presents with frequent urination, excessive thirst, and fatigue. His medical history is unremarkable, but he mentions recent headaches and vision changes. Physical examination reveals pallor and dehydration. Lab results show hypernatremia and increased serum osmolality. Which gland might be affected by a tumor, leading to these symptoms?

Answer:
The tumor might be affecting the hypothalamus or pituitary gland, disrupting the secretion of antidiuretic hormone (ADH), also known as vasopressin. This disruption results in diabetes insipidus, causing polyuria, polydipsia, dehydration, and electrolyte imbalances like hypernatremia.

← very important to read this case !