

IMPORTANT HORMONES

Prepared by

*Dr. Jarshina K P
GHMC Calicut
Final BHMS*

HYPOTHALAMUS

1. **ACTH:** 10–50 pg/ml (7.2–63 Ng/ml)

↑ *Cushing's dis, Addison's dis, Ectopic ACTH producing tumor*

Wt gain

buffalo hump

moon face

striae on skin

↓ *Adrenal tumor, steroid medication, hypopituitarism*

Wt loss

anorexia

weakness

nausea vomiting

hypotension

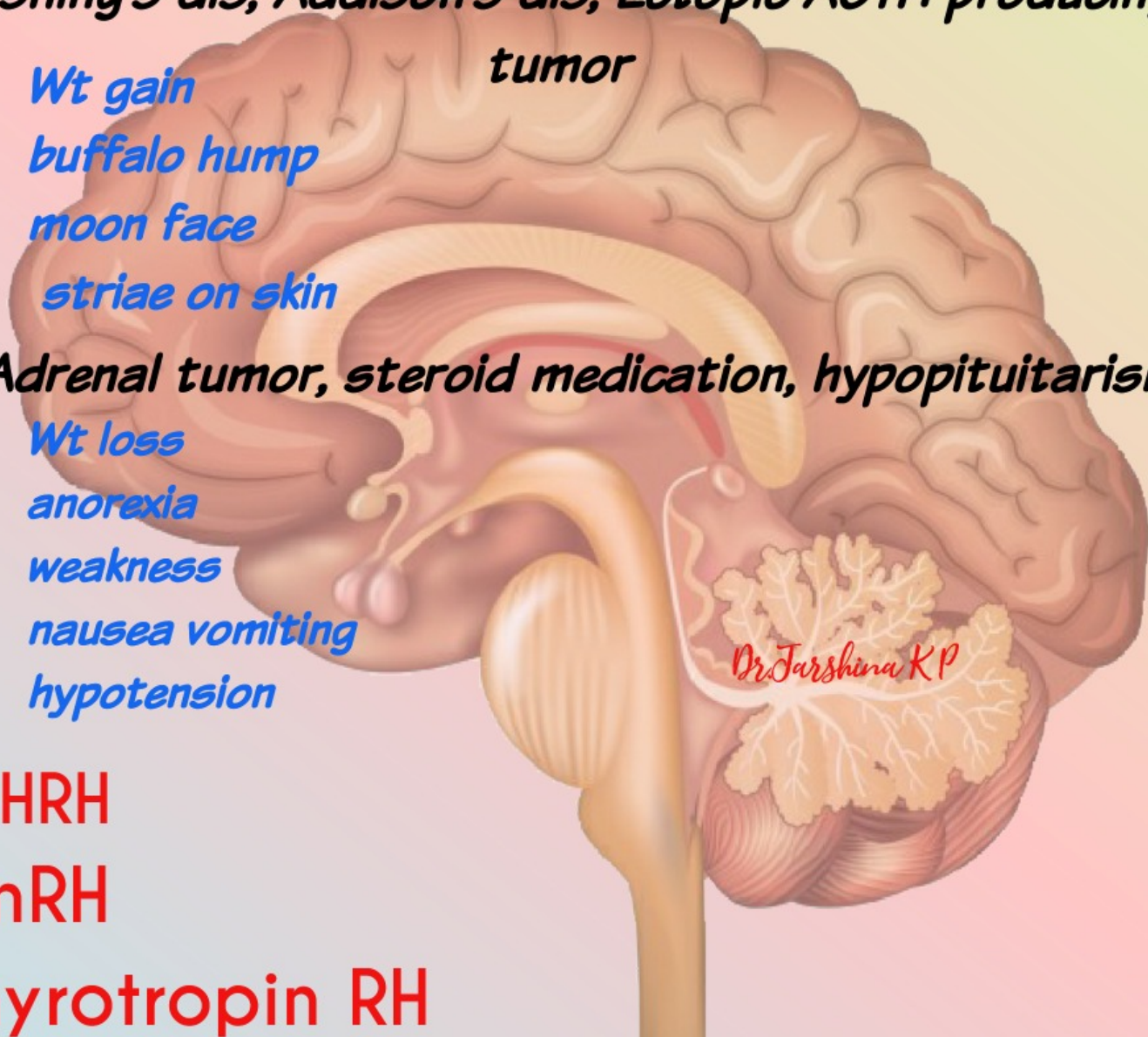
2. GHRH

3. GnRH

4. Thyrotropin RH

5. Somatostatin

6. Dopamin



Anterior PITUITARY

1. ACTH

2. MSH *alpha 10–45 pg/ml*
beta 20–110 pg/ml

↑ *adrenal insufficiency*
pregnancy
ocp
Cushing's syndrome

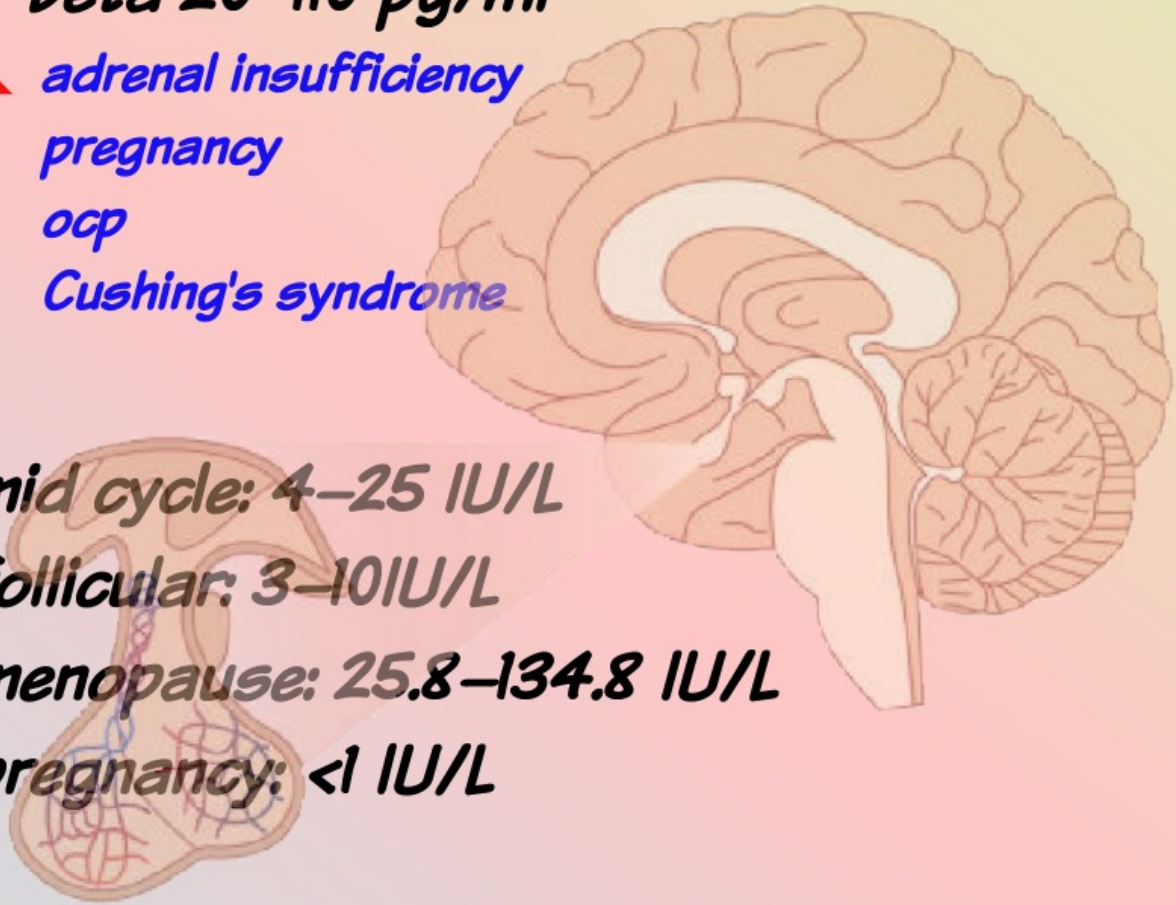
3. FSH

mid cycle: 4–25 IU/L
follicular: 3–10 IU/L
menopause: 25.8–134.8 IU/L
pregnancy: <1 IU/L

4. LH

follicular: 2–8 IU/ml
mid cycle: 10–75 IU/ml
menopause: >15 IU/ml
pregnancy: 2–9 IU/ml

5. TSH *0.5–5 mIU/ml*



6. GH

pituitary contain 6–10 mg of extractable GH

circulatory level: <0.5 µg/L/day

↑ *gigantism*
acromegaly

↓ *dwarfism*

7. PRL

Basal PRL : 10–20 ng/ml (men & nonpregnant women)

end of pregnancy: 200 ng/ml

↑ *galactorrhea*
hirsutism
menstrual irregularities
anovulation
loss of libido
impotence
azoospermia

Posterior PITUITARY

1. Oxytocin

Random: 1–4 pmol/L

Ovulatory peak: 4–8 pmol/L

*uterine contraction
release of milk*

2. Vassopressin

1–3 IU/ml OR 1–5 pg/ml (0.9–4.6 pmol/L)

antidiuretic

vasoconstriction

↓ Diabetes insipidus

↑ SIADH : dilutional hyponatremia

PINEAL GLAND

1. Melatonin

infancy: 325 pg/ml

young adults: 10–60 pg/ml

Hypnotic

Circadian rhythm

Cyclical mood change

Reproduction

Immune response enhancement

Protection or cell damage



restlessness

poor stress response

insomnia

THYROID GLAND

secretion of T4: 60–120 µg/day

T3: 20–30 µg/day

1. T 4: *5–11.7 µg/dL*

2. T 3 *150–250 ng/dL*

3. Calcitonin: *<10 pg/ml*

Hyperthyroidism: Grave's dis, Plummer's dis

*loss of weight
intolerance to heat
increased sweating
increased appetite
palpitation
dyspnea
tremor
diarrhoea
insomnia
exophthalmos*

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Hypothyroidism: myxedema, cretinism

*growth retardation in children
dry skin, thick
intolerance to cold
constipation
somnolence
lethargy, slowing of activities
weight gain
CTS*

PARATHYROID GLAND

1. PTH: 14–65 pg/ml

increases Ca absorption & reabsorption

increases phosphate excretion

formation of calcitriol



hypercalcaemia

corneal band keratopathy

osteoporosis

bone pain & deformities

nephrolithiasis, nephrocalcinosis

UTI

peptic ulceration



hypocalcaemia, hyperphosphatemia

tetany

muscle cramps

dry, scaly skin

brittle hair

moniliasis of nails

cardiac failure

THYMUS GLAND

1. Thymosin

alpha-1 thymosin: development of precursor T cells

2. Thymopoetin

3. Thymulin

→ *Enhance immune system through cell mediated immunity by T cells*



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ADRENAL GLAND

Adrenal cortex

a) Glucocorticoids

1. Cortisol

secretory rate: 12–30 mg/day

Normal level: @8 AM 140–700 nmol/L

(5–25 µg/dL)

mid night 0.8 µg/dL

↑ *Cushing's syndrome*

buffalo hump

moon face

obesity

acne, hirsutism, striae

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2. Corticosterone

secretory rate: 1–4 mg/day

Normal level: 4.5–7.4

3. 11-dehydrocorticosterone

secretory rate: 0.05–0.2 mg/day

b) Mineralocorticoids

1. Aldosterone

secretory rate: 0.05–0.15 mg/day

5–80 mg/dL (children)

7–30 mg/dL (adult)

↑ *Conn's syndrome*

HTN

hypokalemia

polyuria, nocturia

2. Deoxycorticosterone

secretory rate: 0.05–0.2 mg/day

c) Sex hormones

1. Androgens

2. Estrogens

Adrenal medulla

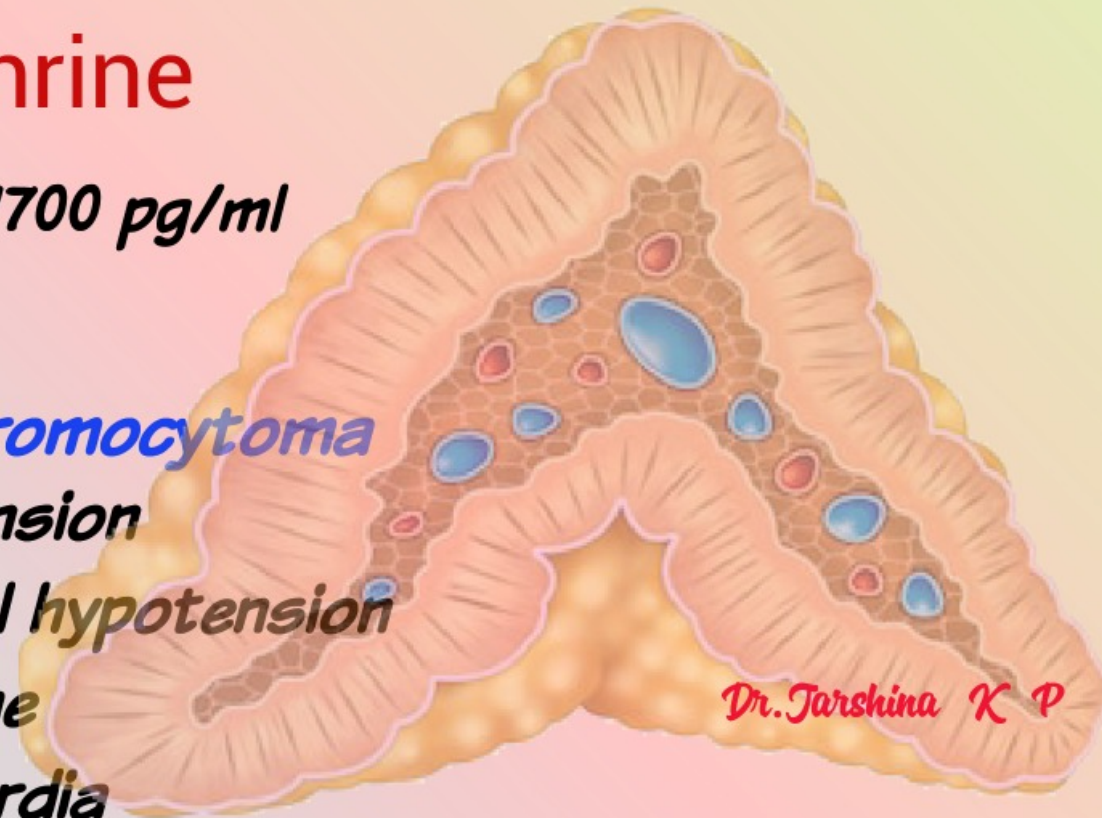
1. Epinephrine

0–140 pg/ml (< 50 µg/dL)

2. Norepinephrine

70–1700 pg/ml

↑ *Pheochromocytoma*
hypertension
postural hypotension
headache
tachycardia
excessive sweating



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GONADS

1. Testosterone

males: 270–1070 ng/ml

females: 15–70 ng/ml

2. Estrogens

	<u><i>Estrone</i></u>	<u><i>Estradiol</i></u>
<i>prepubertal:</i>	<i><29 pg/ml</i>	<i><20 pg/ml</i>
<i>pubescent:</i>	<i>10–200 pg/ml</i>	<i><350 pg/ml</i>
<i>premenopausal:</i>	<i>17–200 pg/ml</i>	<i>15–350 pg/ml</i>
<i>post menopausal:</i>	<i>7–40 pg/ml</i>	<i>40 pg/ml</i>

** males: 12–42 pg/ml*

3. Progesterone

<i>Prepuberty</i>	<i>.07–.52 ng/ml</i>
<i>Follicular phase</i>	<i>.15–.70 ng/ml</i>
<i>Luteal phase</i>	<i>2–25 ng/ml</i>
<i>First trimester</i>	<i>7.25–44 ng/ml</i>
<i>Second trimester</i>	<i>19.5–82.5 ng/ml</i>
<i>Third trimester</i>	<i>62–229 ng/ml</i>
<i>Menopause</i>	<i><.4 ng/ml</i>

PANCREAS

1. Insulin

free insulin: 17 mcU/mL

fasting

: 74 pmol/L

30 mnts after glucose intake: 208–1597 pmol/L

1 hr after glucose intake: 125–1917 pmol/L

2 hr after glucose intake: 111–1153 pmol/L

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2. Glucagon

50–100 pg/mL

3. Gastrin

Total: 0–180 pg/mL



abdominal pain

burning

diarrhoea

nausea vomiting

4. Somatostatin

Guidance and Supervision by:

Dr.SHAMSHEER P

BHMS, MD

Medical officer- Govt. of Kerala

Former Lecturer

Govt. Homoeopathic Medical College

e-mail: drshamsheerbhmsmd@gmail.com

Reference:

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Dr. Jarshina K P

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