PAGE
DATE

Androgen physiology

+ Level : testosterone level = 5% level in men

+ production:
  - amount : 100-400 ~~mc~~ micrograms daily

  - site :
    - Ovary:
      - theca cells
      - Testosterone, androstenedion
      - either : - secreted into circulation
        or - converted to estrogens (in ovary)

    - Adrenal glands:
      - DHEA and DEAS
      - conversion in peripheral circulation

DHEAS
↓
DHEA
↓
androstenedione → estrone
↓
testosterone → estradial

& OF total testosterone:
Ovary ⇒ 25%
Adrenal ⇒ 25%
peripheral
conversion ⇒ 50%

+ plasma pln binding:

- 65% -> sex hormone binding globulin
- 35% -> Albumin
- 1-2% -> unbound

-> Bioavailability = unbound + albumin bound
"weakly bound"

+ Therefore:

~~+ SHBG~~ estrogen, tamoxifen, thyroxine } => ++ SHBG => -- testosterone

testosterone, glucocorticoids } => -- SHBG => ++ testosterone

+ Androgen receptors
  + site: all tissues

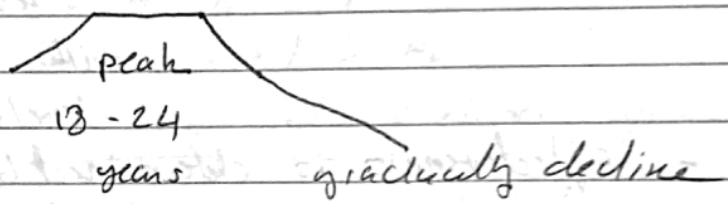
+ Effect either:
  - directly
  - Dihydrotestosterone
  - aromatized to estrogen

PAGE
DATE

Effect of aging on testosterone level:

- At adrenarche ⇒ DHEA and DHEAS production begin
- At age 6-8 years ⇒ testosterone begins

- During reproductive period:
  - source: ovary and adrenal glands



- This decline is attributed to reduction in adrenal gland production

Ovary	25%		ovary 50%
adrenal	25%	⟹	adrenal 10%
peripheral	50%		peripheral 40%

PAGE
DATE

Testosterone measurement

- Recommendations of British menopause society:
  - ~~Before~~ Before starting HRT ⇒ total testosterone ↳ not in the upper range
  - During HRT ⇒ total testosterone q 3 months
    ↳ levels remain within female physiological levels
  - Effectiveness is determined by symptoms alleviation
  - free testosterone levels not recommended

N.B: Free androgen index = $\frac{\text{total testosterone} \times 100}{\text{SHBG}}$

PAGE
DATE

Role of testosterone in women

(1) Sexual function:
contribute to: - desire
- arousal
- orgasm
Mechanism: ↑ dopamin in CNS

(2) Other functions:
- Metabolic function
- Muscle and bone stregth
- urogenital health
- Mood and cognetive dysfunction

Definition and classification of Female sexual dysfunctions

Epidemiology of FSD

Diagnostic evaluation

(+) establish definition

(+) analysis of Hypoactive sexual desire disorder
↳ generalized vs. situational
↳ Acquired vs. lifelong

(+) identify contributing factors e.g.
- GUS
- Endocrine
- Depression

PAGE
DATE

Management of Hypoactive sexual desire disorder:

- Lifelong or situational ⇒ counselling
- Generalized or acquired

1st line ⇒ correct modifiable contributing factors

2nd line ⇒ Androgen therapy

Androgen therapy:

* Benefits: (insufficient evidence / not well established)
  - well being and quality of life
  - cognitive function
  - Musculoskeletal function
  - Bone density

(established)
- improvement of Hypoactive sexual dysfunction disorder

* Preparations:
  - transdermal route (preferred)
    eg: 10 mg 1d gel

+ Oral route disadvantages :- poor absorption
  - First pass metabolism

PAGE

DATE

Recommendations for use:

- NICE gaidelines:
  menopause + hypoactive sexual desire
  + estrogen therapy alone not effective

Advear effects:

- virilization
- defemenization
- liver
- androgen profile