

A close-up photograph of a brown, textured surface, likely a leaf or piece of bark, with a prominent vein structure. The color ranges from dark brown to a reddish-brown hue. The texture is rough and fibrous. Overlaid on this background is the text "In the name of God" in a clean, white, sans-serif font.

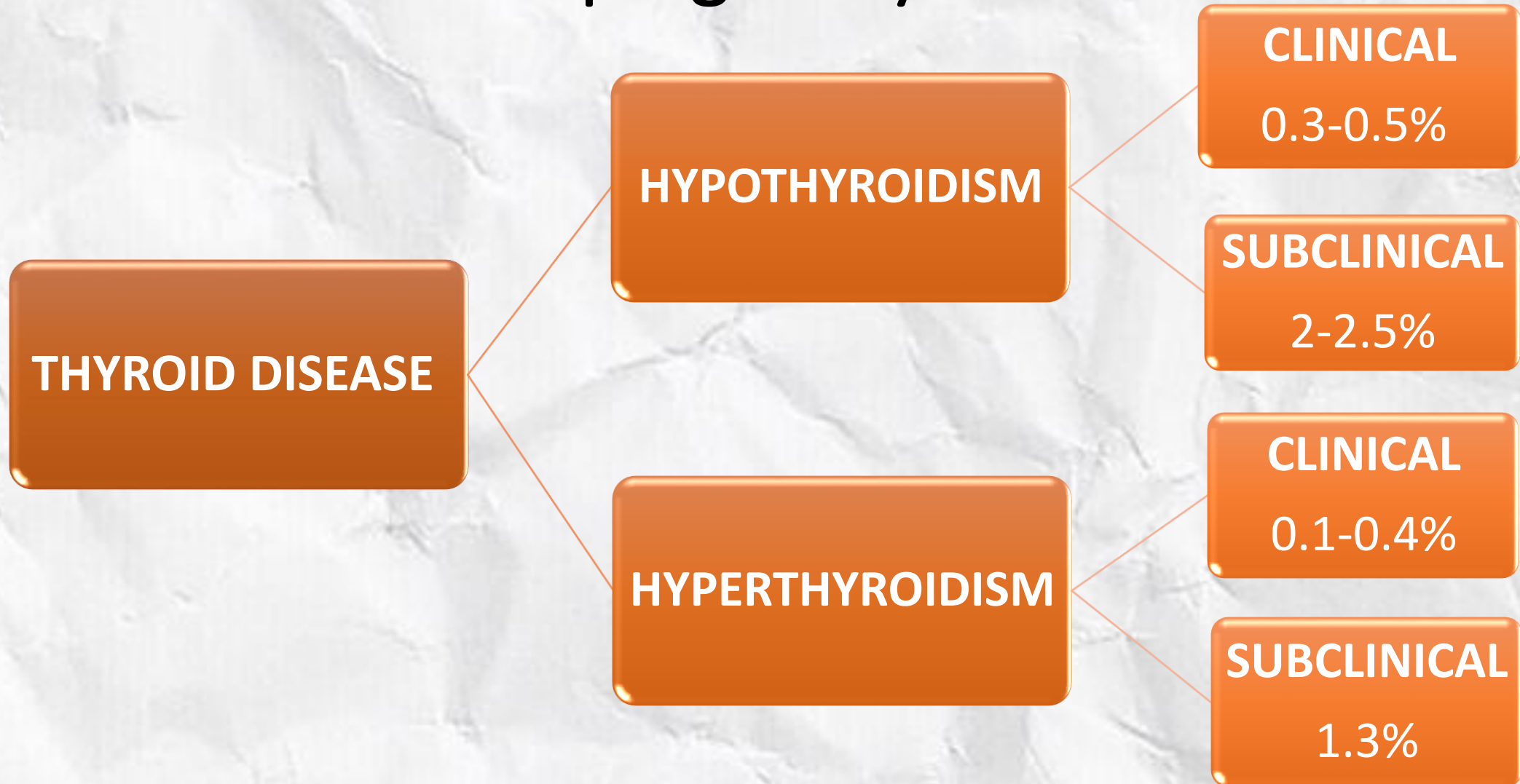
In the name of God

Thyroid disease pregnancy and infertility



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Prevalence of thyroid disorder in pregnancy



Prevalence of thyroid disease in subfertility

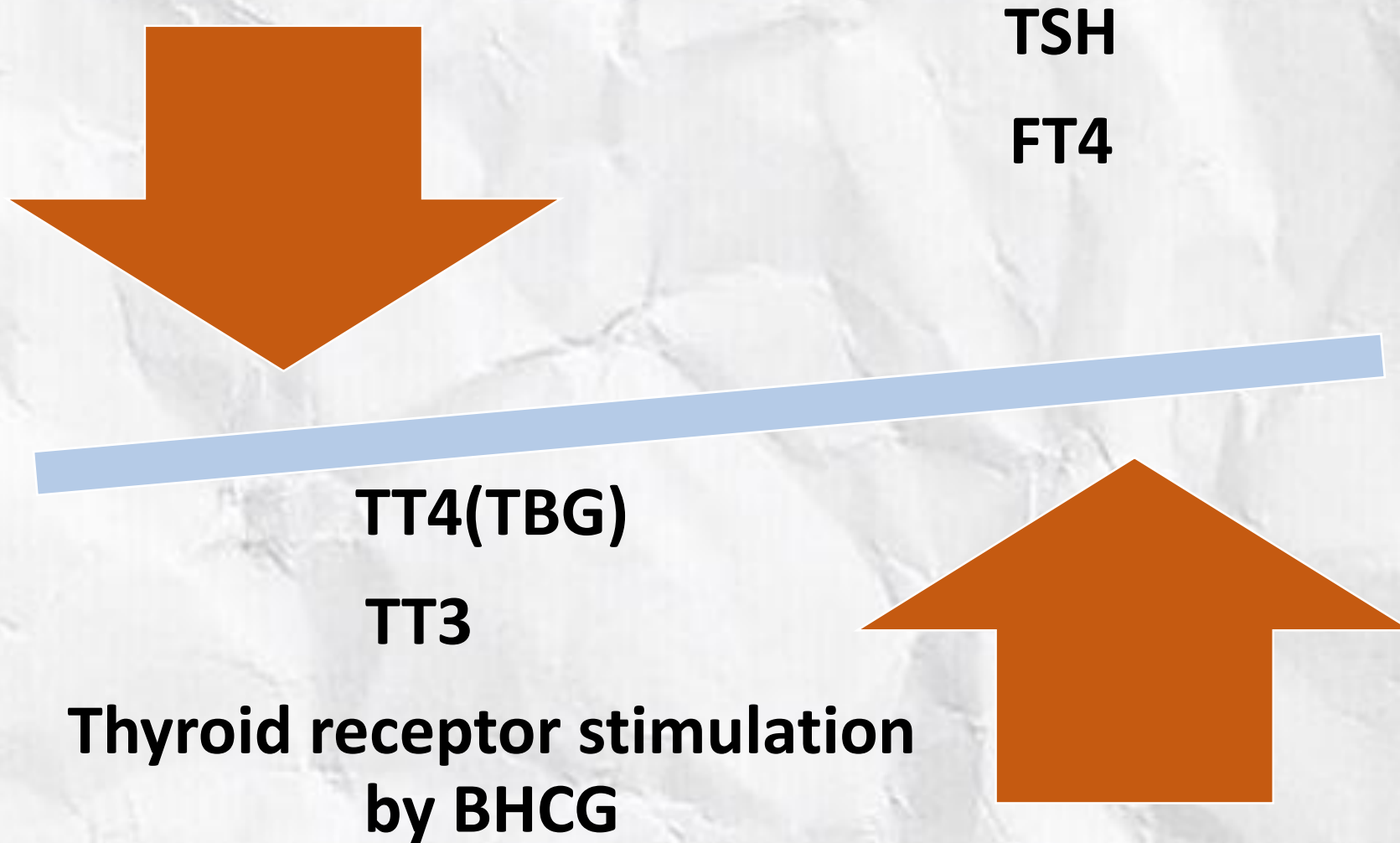
Overt hypothyroidism 2-4.5%

Subclinical hypothyroidism 5-7%

Hyperthyroidism 0.5-1%

Thyroid autoimmunity 5-10%

Thyroid function tests change during pregnancy



Maternal and fetal side effects of thyroid disease

hyper

Hypo

- heart failure
 - miscarriage
 - IUGR
 - still birth
 - neonatal thyroid dysfunction
 - neonatal goiter
 -
- PTL
- Preeclampsia
- infertility
- abruption
- GDM
- impaired fetal mental development
- PPH

should we screen all pregnant women for thyroid disease ?

Universal screening is **controversial** and did not improve pregnancy outcome.

- **High risk patients are:**

- Previous history or surgery on thyroid.
- Age > 30 years.
- Sign of hyperthyroidism or goiter.
- Positive TPO Ab or autoimmune disease like DM1.
- Previous history of abortion or PTLP.
- BMI \geq 40.
- Family history of thyroid disease.
- Infertility.
- Living in areas with Moderate or severe iodine deficiency.
- Lithium or amiodarone usage.

❑ Methods for measuring FT4 is very important in pregnancy. (immunoassays are not very reliable)

❑ When trimester-specific reference ranges for free T4 are not available and free T4 levels appear discordant with TSH, measurement of total T4 may be superior to free T4.

❑ It is better to use FT4I(TT4 , T4 uptake) rather than FT4 in pregnancy.

Hyperthyroidism during pregnancy

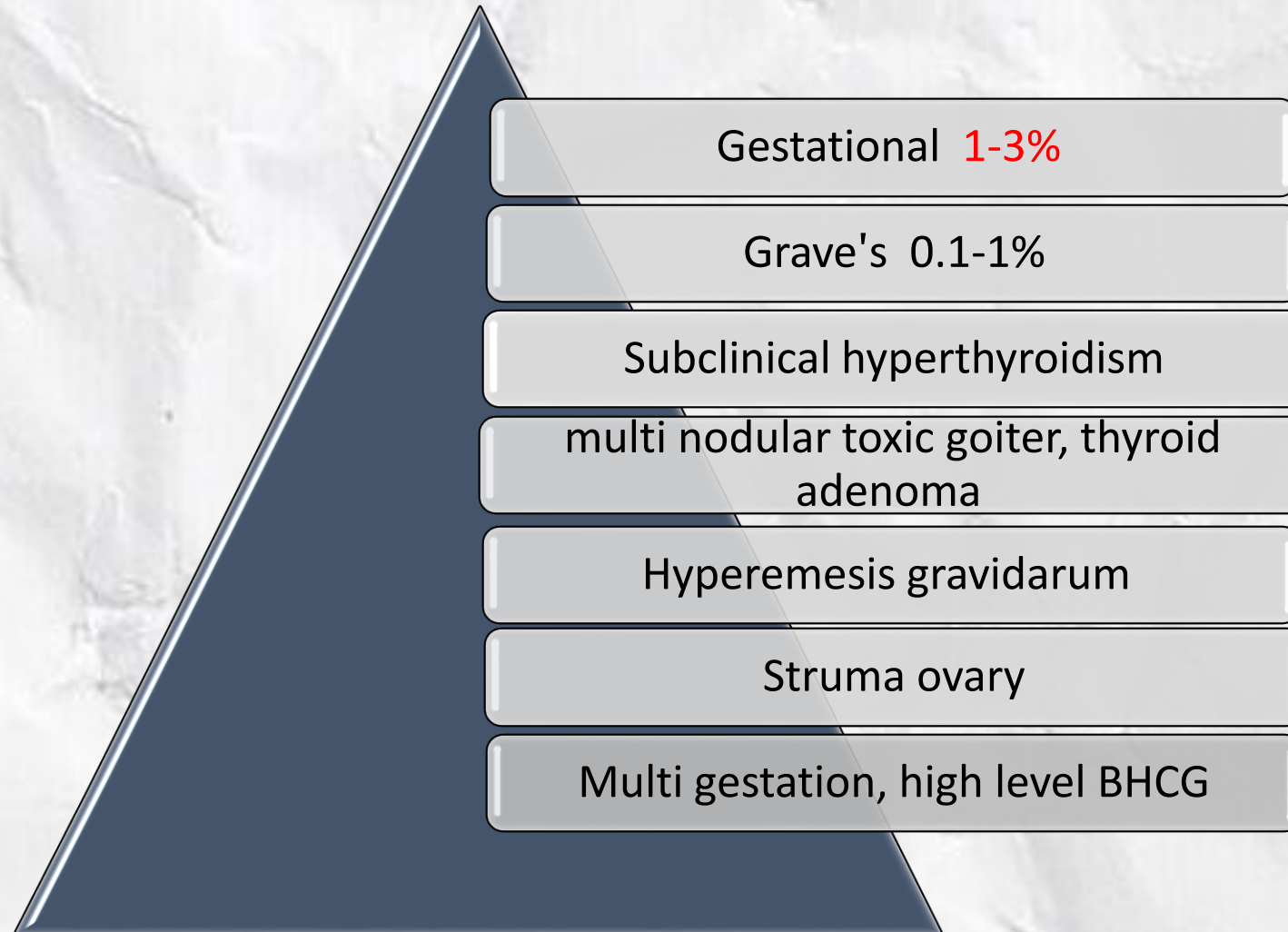
Overt

(low **TSH**+increased **FT4/FT3** or **TT4/TT3** more than **1.5** times the nonpregnant range)

Subclinical

(low **TSH**+ normal reference range **FT4/FT3** or **TT4/TT3** less than **1.5** times the nonpregnant range.)

Causes of hyperthyroidism during pregnancy



Normal TSH range in pregnancy

First trimester

- 0.2
- 3.9

Second trimester

- 0.5
- 4.1

Third trimester

- 0.6
- 4.1

Questions

.dose TSH level change during a day ?

. Should we stop levothyroxine before measuring TSH,FT4,TT4?

Differentiating GH from Graves



history

Physical examination(goiter, opthalmopathy,dermopathy)

TRAb

treatment of hyperthyroidism during pregnancy

- **Graves:** anti thyroid drugs.
Surgery if indicated.
- **Gestational hyperthyroidism :** not recommended
- **Subclinical:** not recommended

Approach to TSH < 0.1mU/L in first trimester

History

Physical examination

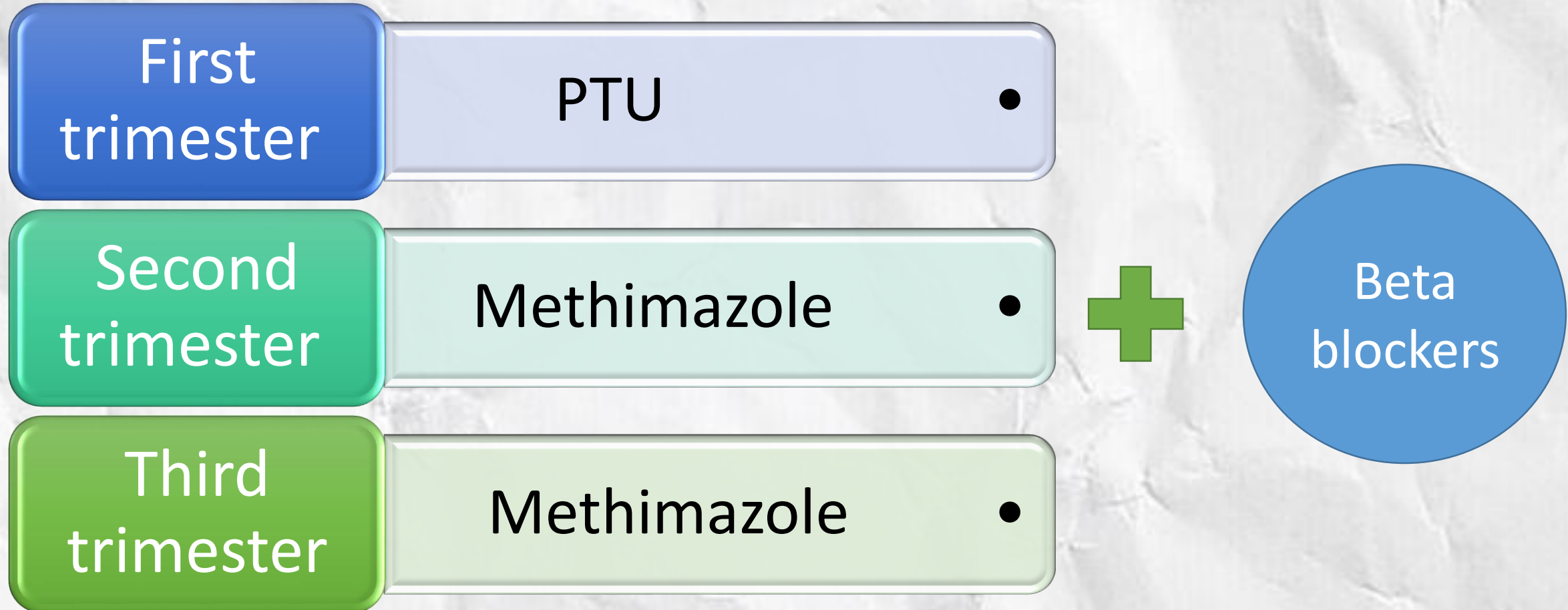
Check FT4I or FT4

Check TRAb and TT3 if needed

Thyroid sonography not recommended.

Thyroid scan and iodine radioactive uptake are contraindicated .

medical treatment of hyperthyroidism in pregnancy



Check FT4 or FT4I and TSH every 2-4 weeks then every 4-6 weeks when FT4 is being controlled.
FT4(13-18 Mg/dl)

Thyroidectomy indication in pregnancy

- Allergy or contraindication to medical treatment.
- Need to high dose of antithyroids for long period. (30 mg metimazole and 450 mg PTU)
- Best time : second trimester

Check **TRAb** in all pregnant women affected to graves between **22-26** weeks and consider **fetal monitoring(FHR, AFI, fetal goiter)** if it is more than **three fold**.

Hypothyroidism during pregnancy

Clinical

Subclinical

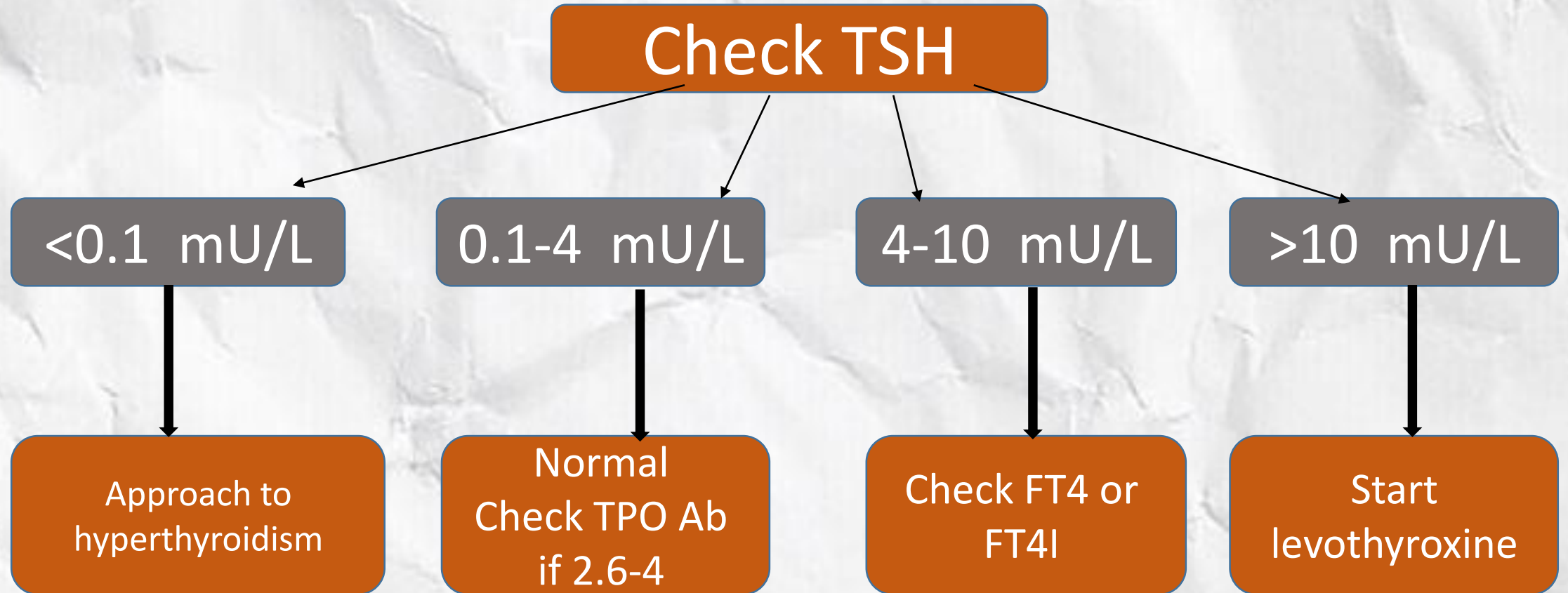
Isolated hypothyroxinemia

common causes of hypothyroidism during pregnancy

Autoimmune thyroiditis(Hashimoto)

Iodine deficiency

Approach to TFT in pregnancy



.....continued

4 < TSH < 10, check FT4

Normal FT4

FT4 < 0.7 ng/dl

Check TPO Ab

levothyroxine

+ ↻
Start levothyroxine
if positive

↻ -
1-start levothyroxine or
2-check TFT q 4-8 weeks with no
treatment

Levothyroxine prescription

- ❑ Clinical hyperthyroidism: 1.6 mcg/kg/day
- ❑ Subclinical hyperthyroidism: 1 mcg/kg/day
- ❑ Euthyroid positive TPOAb: 50 mcg/kg/day
- ❑ Check TSH every 4 weeks in first trimester and then once in second and third trimester.
- ❑ Goal of treatment: TSH < 2.5 mU/L, ideally < 1.2 mU/L.
- ❑ In preconceptional hypothyroid women increase the dose to 30% if pregnancy occurs or 9 pills/week instead of 7 pills/week.

Recommendation

- ❑ If TSH is between 2.5 to 3.9 recheck it again.
- ❑ Before 20 weeks of pregnancy check TSH every 4 weeks until TSH goal level less than 2.5 in first trimester and 3 in second trimester
- .
- ❑ Recheck TSH and FT4 between 26-32 weeks of gestation or once in second and third trimester.
- ❑ Recheck TSH 6 weeks after postpartum.

Recommendation

- **Euthyroid** women with **positive TPOAb** should check TSH every **4-6 weeks** before mid-pregnancy and at least once between **26-32** week and be treated if it is more than trimester specific normal upper limit .

Dairy iodine requirement

- Iodine deficiency is the most common cause of preventable mental retardation in the world.
- **before pregnancy:** 150 mcg
- **Pregnancy:** 250 mcg minimum, 500 mcg maximum.
- **Breast feeding:** 250 mcg minimum, 500 mcg maximum.

Supplements containing 150-250 mcg potassium iodine are sufficient during pregnancy.

Infertility and thyroid disorder

- Any relation between sporadic abortion in positive TPO Ab euthyroid women?
- Any relation between recurrent abortion in positive TPO Ab euthyroid women?
- Should we check TPO Ab before IVF?

2021 European Thyroid Association Guideline on Thyroid Disorders prior to and during ART

1. All women seeking medical advice for subfertility should be screened for TSH and TPOAb.
2. Subfertile women with TSH levels >2.5 mIU/L and without increased TPOAb levels are screened for the presence of increased TgAb levels if not yet done at initial workup.
3. Recommends against the systematic screening for thyroid disorders (TSH and TPOAb) in males of subfertile couples.

4. Suggests screening for thyroid dysfunction (TSH) in men with ejaculation and erectile dysfunction and/or altered semen parameters.

5. Recommends men who desire fertility and need to undergo an ablative dose of RAI to wait at least 120 days before attempting conception/giving sperm for IVF/ICSI.

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6. Suggests offering ICSI for women with evidence of TAI as the preferred fertilisation method in the course of assisted reproduction.

- 7.** Recommends that LT4 treatment should be started promptly in women in case of overt thyroid dysfunction.
- 8.** Recommends LT4 treatment in women with TAI and TSH levels >4.0 mIU/L/ to keep serum TSH levels <2.5 mIU/L.
- 9.** Recommends LT4 treatment in women without TAI and TSH levels >4.0 mIU/L to keep serum TSH levels <2.5 mIU/L.
- 10.** Recommends adjusting LT4 dosage in women already treated for (subclinical) hypothyroidism before OS to keep serum TSH levels <2.5 mIU/L.

- **11.** Suggests LT4 treatment in women with TAI and TSH levels >2.5 and <4.0 mIU/L with a low dose of LT4 (usually 25–50 μg daily) before OS on a case-by-case basis.
- **12.** Dose not recommend treating euthyroid women without TAI before OS.
- **13.** Suggests that euthyroid women with TAI undergoing IVF/ICSI should not be treated systematically with LT4.
- **Treatment criteria:** age >35 , recurrent abortion history, ovarian cause of infertility(DOR,POI)

Thank you

