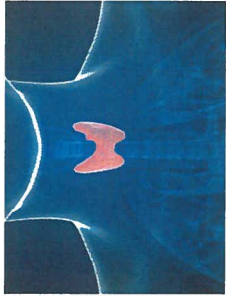
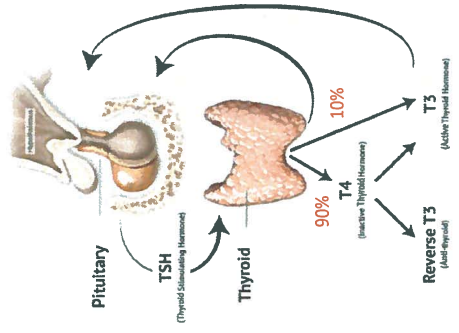


# Dysthyroïdies de l'adulte

Mélanie Givaudan  
Colloque SMPR 05.07.2017



## Rappels physiologiques: axe hypothalamo-hypophysio-thyroïdien



T4: pro-hormone, forme inactive  
Dé-iodation dans les tissus  
périphériques en T3, forme active

[SCCEBORUM'S WEBLOG](#)

## Plan

### 1. Rappels physiologiques

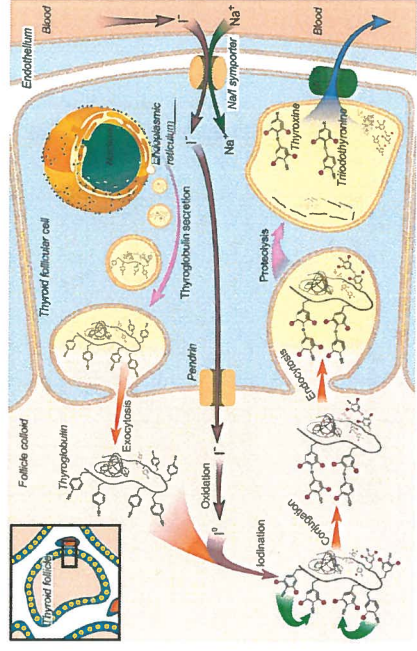
### 2. Hypothyroïdies

### 3. Hyperthyroïdies

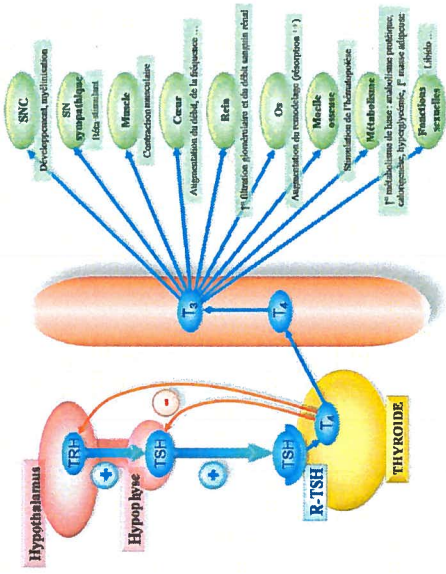
### 4. Urgences

- Coma myxœdémateux
- Thyrotoxicose

## Rappels physiologiques: synthèse des hormones thyroïdiennes

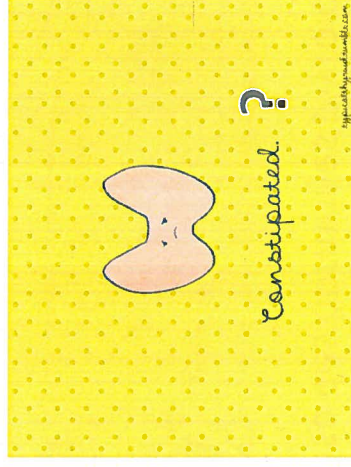


# Rappels physiologiques: organes cibles des hormones thyroïdiennes

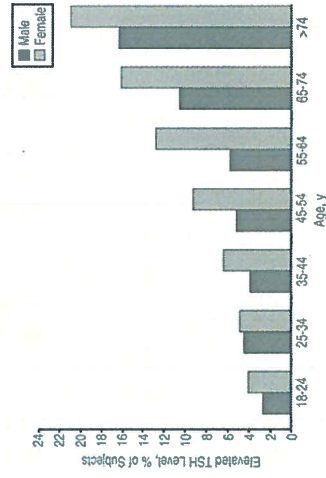


[http://www.memabio.fr/html/bio/bi\\_th.html](http://www.memabio.fr/html/bio/bi_th.html)

# Hypothyroïdies



# Hypothyroïdies Épidémiologie



The Colorado thyroid disease prevalence study. *Arch Intern Med.* 2000 Feb 28;160(4):526-34. [Canaris GF](#), [Manowitz NB](#), [Mayor G](#), [Ridgway EC](#)

# Hypothyroïdies Symptômes

- Goitre (carence en iode et thyroïdite auto-immune chronique)

Mechanism	Symptoms	Signs
Slows of metabolic processes	Fatigue and weakness Cold intolerance Dyspnea on exertion Weight gain Constipation Dry skin Hoarseness Edema Growth failure	Slow movement and speech Delayed relaxation of tendon reflexes Bradycardia Carotenemia
Accumulation of matrix substances	Dry skin Hoarseness Edema	Coarse skin Puffy faces and loss of eyebrows Periorbital edema Enlargement of the tongue
Other	Decreased hearing Men- and premenstrual depression Menorrhagia Prolonged labor	Diabetic hyposthenuria Pituitary and pericardial effusions Asterix Galactorrhea

Uptodate

# Hypothyroïdies

## Etiologies

### Major causes of hypothyroidism

<b>Primary hypothyroidism &gt; 95% des hypothyroïdies</b>
Chronic autoimmune thyroiditis
Iatrogenic
Thyroidectomy
Radioiodine therapy or external irradiation
Iodine deficiency or excess
Drugs - thionamides, lithium, amiodarone, interferon- $\alpha$ , interleukin-2, propylthiouracil, tyrosine kinase inhibitors
Infiltrative diseases - fibrous thyroiditis, hemochromatosis, sarcoidosis
Transient hypothyroidism
Pandemic (silent, lymphocytic) thyroiditis
Subacute granulomatous thyroiditis
Postpartum thyroiditis
Subtotal thyroidectomy
Following radioiodine therapy for Graves' hyperthyroidism
Following withdrawal of suppressive doses of thyroid hormone in euthyroid patients
Congenital thyroid agenesis, dysgenesis, or defects in hormone synthesis
<b>Central hypothyroidism</b>
TSH deficiency
TRH deficiency

**Generalized thyroid hormone resistance TSH ou hormones périphériques**

TRH: thyrotropin-releasing hormone; TSH: thyroid-stimulating hormone.

UptoDate



# Hypothyroïdies

## Imagerie

- US si palpation anormale
- Scintigraphie inutile
- IRM cérébrale si suspicion origine centrale

# Hypothyroïdies

## Laboratoire

- Fonction hypophysaire normale: hypothyroïdie primaire
  - TSH haute
  - T4 libre (et T3) basses
- Fonction hypophysaire diminuée: hypothyroïdie centrale
  - TSH (anormalement) normale/basse
  - T4 libre (et T3) basses
  - TSH peut être haute (sécrétion stimulée d'une forme inactive)

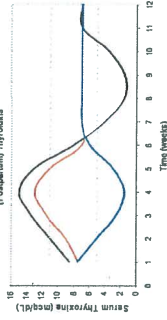
Dépistage-> TSH

Toujours contrôler à 6 sem, CAVE hypothyroïdies transitoires

Transient hypothyroidism  
 Pandemic (silent, lymphocytic) thyroiditis  
 Subacute granulomatous thyroiditis  
 Postpartum thyroiditis  
 Subtotal thyroidectomy  
 Following withdrawal of suppressive doses of thyroid hormone in euthyroid patients

+ Faire bilan lipidique

Figure 2. Patients of Thyroid Dysfunction in Papayas (Postpartum) Thyroiditis

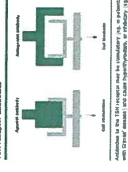


# Hypothyroïdies

## auto-immunes chroniques (primaires)

- 1<sup>ère</sup> cause d'hypothyroïdie: maladie de Hashimoto
  - Auto-immune: anti-TPO (>90% des patients), anti-TG, anti-TR
  - 2 phénotypes: goitre ou atrophique
  - Patho: infiltrat lymphocytaire
- Destruction graduelle de la glande, immunomédiée, causes génétiques et facteurs environnementaux
- Toute hypothyroïdie d'origine non évidente doit faire rechercher des anticorps spécifiques
- Peut se manifester initialement (phase inflammatoire) par hyperthyroïdie sur apoptose glandulaire et relargage des hormones-> **Hashitoxicose**
- Traitements spécifiques: chirurgie si goitre douloureux, compressif

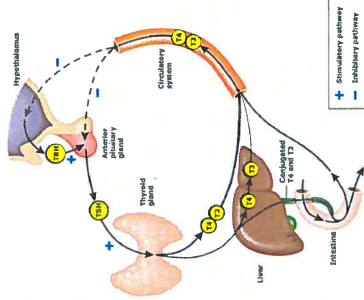
USI receptor antibodies



USI receptor antibodies

## Hypothyroïdies centrales

- Anomalie de sécrétion de TRH ou TSH
  - A suspecter en cas de :
    - Masse hypophysaire connue
    - Hypothyroïdie associée à autres troubles hormonaux



## Hypothyroïdies centrales

- Evaluation:
  - IRM cérébrale
- Dosages hormonaux:
  - IGF (GH)
  - Prolactine
  - LH/FSH/oestradiol/testostérone
  - Test de stimulation à l'ACTH
- Traitements spécifiques:
  - Si insuffisance surrénalienne concomitante, commencer corticothérapie en même temps que T4
  - Neurochirurgie

## Hypothyroïdies centrales

### Major causes of hypopituitarism

Hypothalamic diseases
Mass lesions – Benign (craniopharyngiomas) and malignant tumors (metastatic from lung, breast, etc)
Radiation – For CNS and nasopharyngeal malignancies
Infiltrative lesions – Sarcoidosis, Langerhans cell histiocytosis
Infections – Tuberculous meningitis
Other – Traumatic brain injury, stroke
Pituitary diseases
Mass lesions – Pituitary adenomas, other benign tumors, cysts
Pituitary surgery
Pituitary radiation
Infiltrative lesions – Hypophysitis, hemochromatosis
Infection/abscess
Infarction – Sheehan syndrome
Apoplexy
Genetic mutations
Empty sella

CNS: central nervous system.

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## Hypothyroïdies périphériques

- Mécanisme:
  - Résistance de la thyroïde à TSH
  - Résistance des tissus périphériques aux hormones thyroïdiennes
- Laboratoire
  - TSH haute/normale
  - T4 (et T3) hautes si mutation récepteur à T3
- Clinique
  - Le + souvent euthyroïdiens, parfois hypothyroïdiens

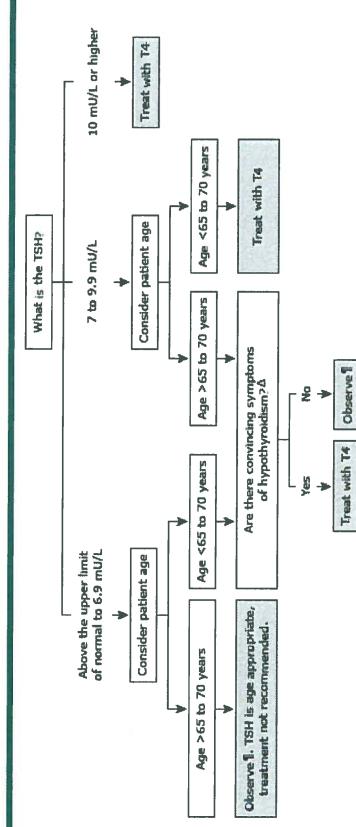
## Hypothyroïdies Traitement

- But du traitement:
  - Normalisation TSH
  - Amélioration des symptômes
  - ! Sauf hypothyroïdie centrale, on vise T4 normale sup
- Substitution hormonale:
  - Hypothyroïdie franche
  - Hypothyroïdie subclinique en fonction du taux de TSH/clinique
- Non indiquée:
  - Hypothyroïdie transitoire
  - Hypothyroïdie réversible

## Hypothyroïdies Traitement

- Hormone:
  - T4 synthétique, l'organisme régule la transformation en T3
  - Pas de bénéfice symptomatologique au traitement combiné T4+ T3 (déficit en déiodinase 2, thyroïdectomisés?)
- Posologie initiale:
  - Full dose chez les jeunes (1.6 ug/kg/j)
  - Petites doses (25-50 ug) chez patients âgés ou coronariens
  - A jeun, 1h avant petit-déjeuner (idéalement)
  - Monitoring à 6 sem si amélioration des symptômes, 3 sem sinon avec ajustement dose
  - Monitoring 1x/an si stabilité biologique et clinique
- NB: besoin augmenté chez femme enceinte 25-30%

### Indications for thyroid hormone replacement in nonpregnant adults with subclinical hypothyroidism \*



TSH: thyroid-stimulating hormone; T4: levothyroxine; free T4: free thyroxine.

\* Subclinical hypothyroidism is defined by a TSH above the normal reference range with a normal free T4, confirmed with repeat measurement.

¶ For patients not treated with T4, monitor TSH and free T4 initially at six months and, if stable, yearly thereafter. Δ Convincing symptoms of hypothyroidism (new or worsening fatigue, constipation, cold intolerance) or growing goiter.

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Norme labo HUG 0.27-4.2 mU/L

## Cas clinique

Patiente de 45 ans, BSH  
Depuis 3 mois: asthénie, prise de poids, constipation  
Clinique: sp  
Labo: TSH 25 mU/L

### Que faites-vous?

- Contrôle TSH?
- Dosage T4, T3?
- Anticorps?
- Imagerie?

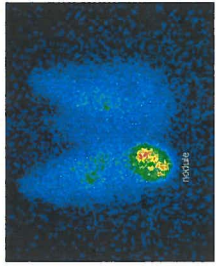
# Hyperthyroïdies



*My thyroid makes my heart flutter  
(but not in a good way)*

<http://www.thyroid.com>

# Hyperthyroïdies Etiologies



## Causes of hyperthyroidism

Hyperthyroidism with a normal or high radioiodine uptake
Autoimmune thyroid disease
Graves' disease, 60-70%
Toxic multinodular goiter
Toxic adenoma, <10%
TSH-mediated hyperthyroidism
TSH-producing pituitary adenoma
Non-neoplastic TSH-mediated hyperthyroidism
Human chorionic gonadotropin-mediated hyperthyroidism
Hyperemesis gravidarum
Trophoblastic disease
Hyperthyroidism with a near absent radioiodine uptake
Thyroiditis
Subacute granulomatous (de Quervain's) thyroiditis
Painless thyroiditis (silent thyroiditis, lymphocytic thyroiditis)
Postpartum thyroiditis
Amiodarone (also may cause iodine-induced hyperthyroidism) / produit de contraste
Radionuclide thyroiditis
Painless thyroiditis
Exogenous thyroid hormone intake
Excessive replacement therapy
Intentional suppressive therapy
Fatious hyperthyroidism
Ectopic hyperthyroidism
Struma ovarii
Metastatic follicular thyroid cancer

Major causes of hyperthyroidism according to the presence of a high or low radioiodine uptake. High uptake indicates increased new hormone synthesis by the thyroid, whereas low uptake indicates release of preformed hormone, exogenous ingestion, or extrathyroidal hormone synthesis.  
TSH: thyroid-stimulating hormone.

UptoDate

# Hyperthyroïdies

## Symptômes

- Psy: anxiété, labilité émotionnelle
- Faiblesse, tremor, myopathie
- Palpitations, FA
- Intolérance à la chaleur, transpiration
- Perte de poids malgré appétit augmenté
- Troubles menstruels, gynécomastie

## Signes

- Hyperactivité
- Peau chaude et moite, cheveux fins
- Tachycardie, HTAS
- Hyperréflexie
- Exophtalmie, œdème périorbitaire, limitation mouvements oculaires
- Dermopathie infiltrative (myxoedème pré-tibial)
- Goitre
- Ostéoporose

Maladie de Grave

# Hyperthyroïdies Laboratoires

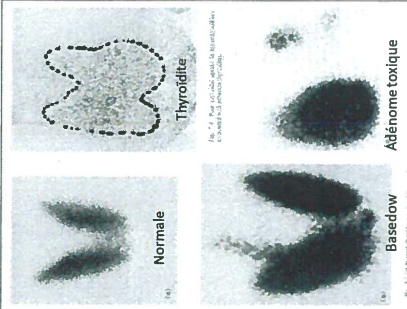
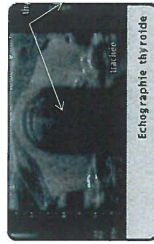
- Fonction hypophysaire normale: hyperthyroïdie primaire
  - TSH basse
  - T4 et T3 hautes
  - NB: hyperthyroïdie subclinique: T4 et T3 normales
- Fonction hypophysaire altérée: hyperthyroïdie centrale
  - TSH normale/haute
  - T4 et T3 hautes

Si diagnostic non évident (clinique, labo) -> dosage Ac anti-TR (TRAB)(Grave)

Toujours contrôler TSH à quelques sem (hyperthyroïdies transitoires!)

# Hyperthyroïdies Imagerie

- US: goitre, nodules, masse – Doppler: état hypermétabolique
- Scintigraphie: synthèse des hormones de novo vs inflammation/destruction tissu thyroïdien
- IRM cérébrale



# Hyperthyroïdies Maladie de Grave/Basedow

- Triade: goitre, ophtalmopathie, hyperthyroïdie (+/- myxœdème prétiibial)
- Immuno-médiée, présence d'Ac qui stimulent les récepteurs de la TSH (TRab)
- Traitements spécifiques:
  - Atténuer immédiatement les symptômes: Propanolol 10-120 mg/j (cardio) (Atenolol, Metoprolol)
  - Réguler la fonction thyroïdienne: anti-thyroïdiens (thionamides), radio-iodé, chirurgie
    - -> pas de Gold Standard, à discuter au cas par cas
    - NB: rémission 45-50% à 1 an
    - NB: récursive 50-55%



En pratique au cabinet, débiter ttt symptomatique avant bilan complet et RDV endocrin

Adaptation de l'anti-thyroïdien par l'endocrin

# Hyperthyroïdies Maladie de Grave/Basedow

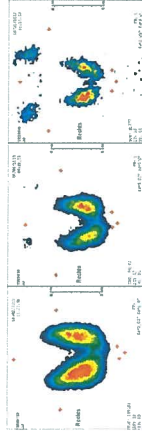
Therapy	Advantages	Disadvantages
Thionamides	Chance of permanent remission Some patients Some patients Some patients Lower initial cost	Minor side effects: rash, fever, arthralgias, transient granulocytopenia, gastrointestinal symptoms Major side effects: agranulocytosis, liver dysfunction, vasculitis, leukopenia, aplastic anemia, hypothyroidism, and birth defects if pregnant. Requires more frequent monitoring
Radioiodine	Permanent resolution of hyperthyroidism	Permanent hyperthyroidism Patients must take radiation precautions for several days after treatment, avoid contact with young children and pregnant women Development or worsening of Graves' ophthalmopathy Rare radiation thyroiditis Patient concerns about long-term oncogenic effects of radiation
Surgery	Rapid, permanent cure of hyperthyroidism	Permanent hypothyroidism Risks for iatrogenic hypoparathyroidism and recurrent laryngeal nerve damage Risks associated with general anesthesia High cost

Summary of the advantages and disadvantages of the three major therapeutic modalities used in the treatment of Graves' hyperthyroidism

-> chez patients avec symptômes +++ pour atteindre euthyroïdie avant traitement complémentaire

Carbimazole (20-30 mg/j) vs PTU

-> capsule de Na I-131 (1 dose), se concentre dans tissu thyroïdien, détruit le tissu en 6 à 18 sem, monitoring tests thyroïdiens dès 4 sem post-traitement +/- substitution en T4



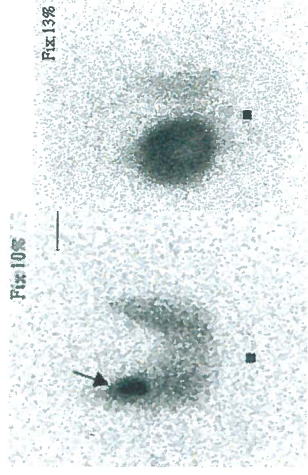
Avant

M+3

M+10

# Hyperthyroïdies Goitres et nodules toxiques

- Mutation du gène codant pour réc. TSH, auto-activation en l'absence de TSH
- 30% des hyperthyroïdies
- Favorisés par apports d'iode: Amiodarone, Scanner



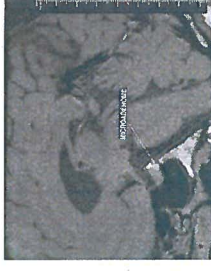
## Hyperthyroïdies

### Goitres et nodules toxiques

- **Nodules:**
  - F:H 3:1
  - 40 ans 30%, 60 ans 50%
  - 95% bénins
- **Examen de référence: US**
- **Doser la TSH: les nodules chauds sont bénins**
- **Cytoponction si TSH normale ou haute**
- **Scintigraphie si TSH basse**

## Hyperthyroïdie centrale

- **Adénome hypophysaire sécrétant**
  - Troubles du champ visuel, galactorrhée
  - Examens complémentaires:
    - Dosage de la sous-unité alpha
    - IRM
  - **Traitement:**
    - Chirurgie
    - Octreotide (analogues de somatostatine)
    - Radioiode ou chirurgie de la thyroïde si échec
- **Résistance de l'hypophyse au rétro-contrôle hormones thyroïdiennes**
  - Mutation réc T3
  - Traitement: T3 et dérivés, peu efficace

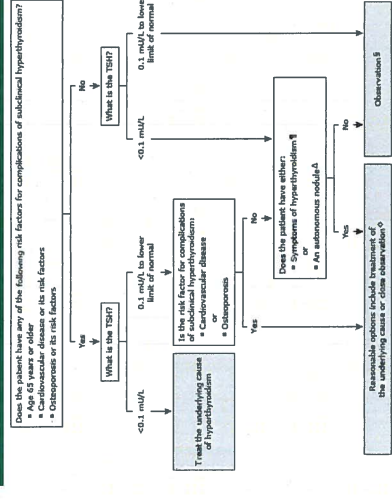


## Hyperthyroïdie

### Absorption iode absente

- **Thyroïdite de De Quervain:**
  - Virale, post virale
  - Fièvre, malaise, goitre douloureux
- **Thyroïdite indolore:**
  - AI
  - Post-partum
  - > traitement symptomatique: beta-bloquants, AINS, cortico
- **Hyperthyroïdie ectopique:**
  - Néoplasie ovarienne
  - Métastase de néoplasie thyroïdienne

### Indications for treatment of endogenous subclinical hyperthyroidism in nonpregnant adults\*



## Hyperthyroïdie subclinique



## Cas clinique

Patiente de 25 ans, BSH  
 Depuis 1 sem, mal-être, insomnie, palpitations  
 Virose ORL il y a 2 sem, bonne évolution  
 Clinique: FC 117 bpm, palpation thyroïde sensible  
 Labo: TSH < 0.1 mU/L, reste sp

### Que faites-vous?

- Contrôle TSH?
- Dosage T4, T3?
- Dosage anticorps?
- Imagerie?
- Traitement?

## Urgences thyroïdiennes

## Coma myxoédémateux

### Clinical features of myxedema coma

Decreased mental status
Hypothermia
Bradycardia
Hypostreimia
Hypoglycemia
Hypotension
Precipitating illness

UptoDate

Diagno: clinique et labo

- Y penser:
- Thyroïdectomisé
  - Radio-iodé
  - Hypothyroïdie

Très rare MAIS 30-50% de mortalité

### Treatment of myxedema coma

Draw serum for T4, TSH, and cortisol.  
 Administer levothyroxine 200 to 400 mcg intravenously, followed by daily doses of 50 to 100 mcg, and triiodothyronine 5 to 20 mcg intravenously, followed by 2.5 to 10 mcg every eight hours.  
 Change to an appropriate oral dose of levothyroxine when the patient can tolerate oral medications. (Oral dose is approximately the intravenous dose divided by 0.75).  
 Hydrocortisone 100 mg intravenously every eight hours until exclusion of possible adrenal insufficiency.  
 Supportive measures:  
 Mechanical ventilation  
 Fluids and vasopressor drugs to correct hypotension  
 Passive rewarming  
 Intravenous dextrose  
 Consider empirical antibiotic treatment.  
 Monitor for arrhythmias and treat when indicated.  
 T4: thyroxine; TSH: thyroid stimulating hormone.  
 \* The lower end of the dose ranges is preferred in lower weight and older patients and those at risk for cardiac complications. Refer to accompany UptoDate topic on myxedema coma.

UptoDate

### Diagnostic criteria for thyroid storm\*

Thermoregulatory dysfunction	Cardiovascular dysfunction
Temperature (°F) (± 0.5)	Tachycardia
98 to 99.9   37.2 to 37.7	99 to 109
100 to 100.9   37.8 to 38.2	110 to 119
101 to 101.9   38.3 to 38.8	120 to 129
102 to 102.9   38.9 to 39.4	130 to 139
103 to 103.9   39.4 to 39.9	≥140
≥104.0   ≥40.0	Atrial fibrillation
Central nervous system effects	Heart failure
Mild	Mild
Agitation	Pedal edema
Moderate	Moderate
Delirium	Ribcage rales
Psychosis	Severe
Extreme lethargy	Pulmonary edema
Severe	Precipitant history
Seizure	Negative
Coma	Positive
Gastrointestinal-hepatic dysfunction	
Moderate	
Diarrhea	
Nausea/vomiting	
Abdominal pain	
Severe	
Unexplained jaundice	

\* A score of 45 or more is highly suggestive of thyroid storm, a score of 25 to 44 supports the diagnosis, and a score below 25 makes thyroid storm unlikely.

Adapted from: Burch HB, Wartofsky L. Life-threatening thyrotoxicosis. Thyroid storm. Endocrinol Metab Clin North Am. 1993; 22:683.

UptoDate

## Crise thyrotoxique

Clinique:  
 Tachycardie, décompensation cardiaque  
 Hyperthermie  
 Agitation, anxiété, stupeur, délire, coma  
 Douleurs abdominales, nausées, vomissements

Diagno: clinique et labo

Traitement:

- Beta-bloquant (propranolol 60-80mg/6h PO)
  - Thionamide (PTU 200mg/4h PO)
  - Solution iodée (1h après PTU PO)
  - GCS (hydrocortisone 100 mg/8h IV)
  - Chélateur d'acides biliaires (cholestyramine 4g/8h PO)
- + manœuvres de réanimation usuelles

Très rare MAIS mortalité 10-30%

Merci



## Annexes

Patterns of thyroid function tests during assessment of thyroid function

Serum TSH	Serum free T4	Serum T3	Assessment
<b>Normal hypothalamic-pituitary function</b>			
Normal	Normal	Normal	Euthyroid
Normal	Normal or high	Normal or high	Euthyroid hyperthyroxinemia
Normal	Normal or low	Normal or low	Euthyroid hypothyroxinemia
Normal	Low	Normal or high	Euthyroid: T3 therapy
Normal	Low-normal or low	Normal or high	Euthyroid: thyroid extract therapy
High	Low	Normal or low	Primary hypothyroidism
High	Normal	Normal	Subclinical hypothyroidism
Low	High or normal	High	Hyperthyroidism
Low	Normal	Normal	Subclinical hyperthyroidism
<b>Abnormal hypothalamic-pituitary function</b>			
Normal or high	High	High	TSH-mediated hyperthyroidism
Normal or low*	Low or low-normal	Low or normal	Central hypothyroidism

T3: triiodothyronine; T4: thyroxine; TSH: thyroid stimulating hormone.  
 \* In central hypothyroidism, serum TSH may be low, normal, or slightly high.

## Dépistage hypothyroïdie

- In the absence of data supporting any screening strategy, we suggest screening patients at **increased risk for hypothyroidism**, including but not limited to patients with **goiter**, history of **autoimmune disease**, previous **radioactive iodine therapy**, and/or head and neck **irradiation**, **family history of thyroid disease**, and use of **medications** that may impair thyroid function.
- We recommend measurement of serum thyroid-stimulating hormone (TSH) as a screening test for hypothyroidism.

**Drugs that cause hypothyroidism, hyperthyroidism, or changes in thyroid function tests**

<p><b>Drugs causing hypothyroidism</b></p> <p>Inhibition of thyroid hormone synthesis and/or release - thiocyanides, lithium, perchlorate, amiodolone, thioamides, and iodine and iodine-containing drugs including amiodarone, radiographic agents, expectorants (eg, guaifenesin), kelp tablets, potassium iodine solutions (SSC), lithium, douches, topical antiseptics</p> <p>Decreased absorption of T4 - cholestyramine, colestipol, colestiramin, aluminum hydroxide, calcium carbonate, sucralose, iron sulfate, ranitidine, omeprazole, loperamide, and possibly other medications that impair acid secretion, oral contraceptives, and iron; malabsorption syndromes can also diminish T4 absorption</p> <p>Immune dysregulation - interferon <math>\alpha</math>, interferon <math>\beta</math>, glatiramer acetate, pembrolizumab, nivolumab</p> <p>Suppression of TSH - dopamine</p> <p>Possible destructive thyroiditis - sunitinib</p> <p>Increased type 3 deiodinase - sorafenib</p> <p>Increased T4 clearance and suppression of TSH - bezafibrate</p>
<p><b>Drugs causing hyperthyroidism</b></p> <p>Stimulation of thyroid hormone synthesis and/or release - iodine, amiodarone</p> <p>Immune dysregulation - interferon <math>\alpha</math>, interferon <math>\beta</math>, glatiramer acetate, pembrolizumab</p>
<p><b>Drugs causing abnormal thyroid function tests without thyroid dysfunction</b></p> <p>Low serum T86 - androgens, danazol, glucocorticoids, slow-release niacin (nicotinic acid), l-sibapagaine</p> <p>High serum T86 - estrogens, tamoxifen, raloxifene, methadone, 5-fluorouracil, doxorubicin, heroin, metoclopramide</p> <p>Decreased T4 binding to T86 - salicylates, salicylate, furosemide, heparin (via free fatty acids), certain NSAIDs</p> <p>Increased T4 clearance - phenytoin, carbamazepine, rifampin, phenobarbital</p> <p>Suppression of TSH secretion - fibrotic agents, glucocorticoids, octreotide</p> <p>Increased conversion of T4 to T3 - amiodarone, glucocorticoids, contrast agents for oral cholecystography (eg, ipodate acid), propylthiouracil, propylthiouracil, nifedipine</p>

T4: thyroxine; T3: thyroid-stimulating hormone; T86: thyroxine-binding globulin; NSAIDs: nonsteroidal anti-inflammatory drugs; T3: triiodothyronine.

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**Factors that increase the requirement for T4**

<p>Pregnancy</p> <p>Estrogen therapy</p> <p>Weight gain</p> <p><b>Drugs which increase catabolism of T4</b></p> <p>Rifampin</p> <p>Carbamazepine</p> <p>Phenytoin</p> <p>Phenobarbital</p> <p>Imatinib</p> <p><b>Malabsorption or increased excretion of T4</b></p> <p>Gastrointestinal disorders (eg, celiac disease)</p> <p>Impaired acid secretion</p> <p>Drugs that interfere with T4 absorption</p> <p>Ferrous sulfate</p> <p>Cholestyramine or colestipol</p> <p>Sucralose</p> <p>Aluminum hydroxide gels</p> <p>Calcium carbonate</p> <p>Setraline</p> <p>Raloxifene</p> <p>Omeprazole</p> <p><b>Nephrotic syndrome</b></p> <p><b>Progressive thyroid dysfunction</b></p> <p>Autoimmune thyroiditis</p> <p>Previous thyroid irradiation</p>
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T4: thyroxine.

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