

INDIAN THYROID SOCIETY QUIZ- MAY 11 2022

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QUESTION 1

- * **The meeting of the Middlesex County of Massachusetts was a remarkable moment in the history of Thyroidology. This was when a renowned surgeon and a young physician had a verbal duel on stage regarding the best treatment option for Graves' disease.**
- * **The physician was Edwin Atwood who was the inventor of Propylthiouracil (PTU) and believed that this was sufficient and enough for the treatment of Graves' disease.**
- * **The surgeon, a very famous surgeon, called him "Poor Dr. Atwood" and said the ultimate treatment was surgery and medicines were only helpful for making the surgery safer.**
- * **The response was not seen in a good light because the surgeon was indeed one of the richest men in Massachusetts and the physician was indeed "poor".**
- * **In response, Dr. Atwood gave a rousing argument and data in favor of medical therapy.**
- * **The treatment of Graves' disease has never been the same again.**
- * **He had his mic-drop moment when he ended his talk with "Poor Dr. ", signaling the end of surgical treatment alone for the disease.**
- * **Who was the surgeon ? (Hint: A method of palpating the thyroid gland is named after him)**

OPTIONS

- * A) Dr. Emil Kocher
- * B) Dr. Pierre Joseph Desault
- * C) Dr. Frank Lahey
- * D) Dr. Earle Chapman

Answer: C

- * The surgeon was Dr. Frank Lahey
- * He was the proponent of Subtotal thyroidectomy for Graves' disease
- * The Lahey's technique is one of the technique for palpating the thyroid gland

Q2. Based on the recent study published in the JCEM, which shape of thyroid nodule was associated with more risk of malignancy ?

A) An oval-shaped nodule was associated with more risk of malignancy

B) A sphere-shaped nodule was associated with more risk of malignancy

C) A pear-shaped nodule was more associated with the risk of malignancy

D) There was no correlation between the shape of the nodule and risk of malignancy

Answer B) A sphere-shaped nodule was associated with more risk malignancy

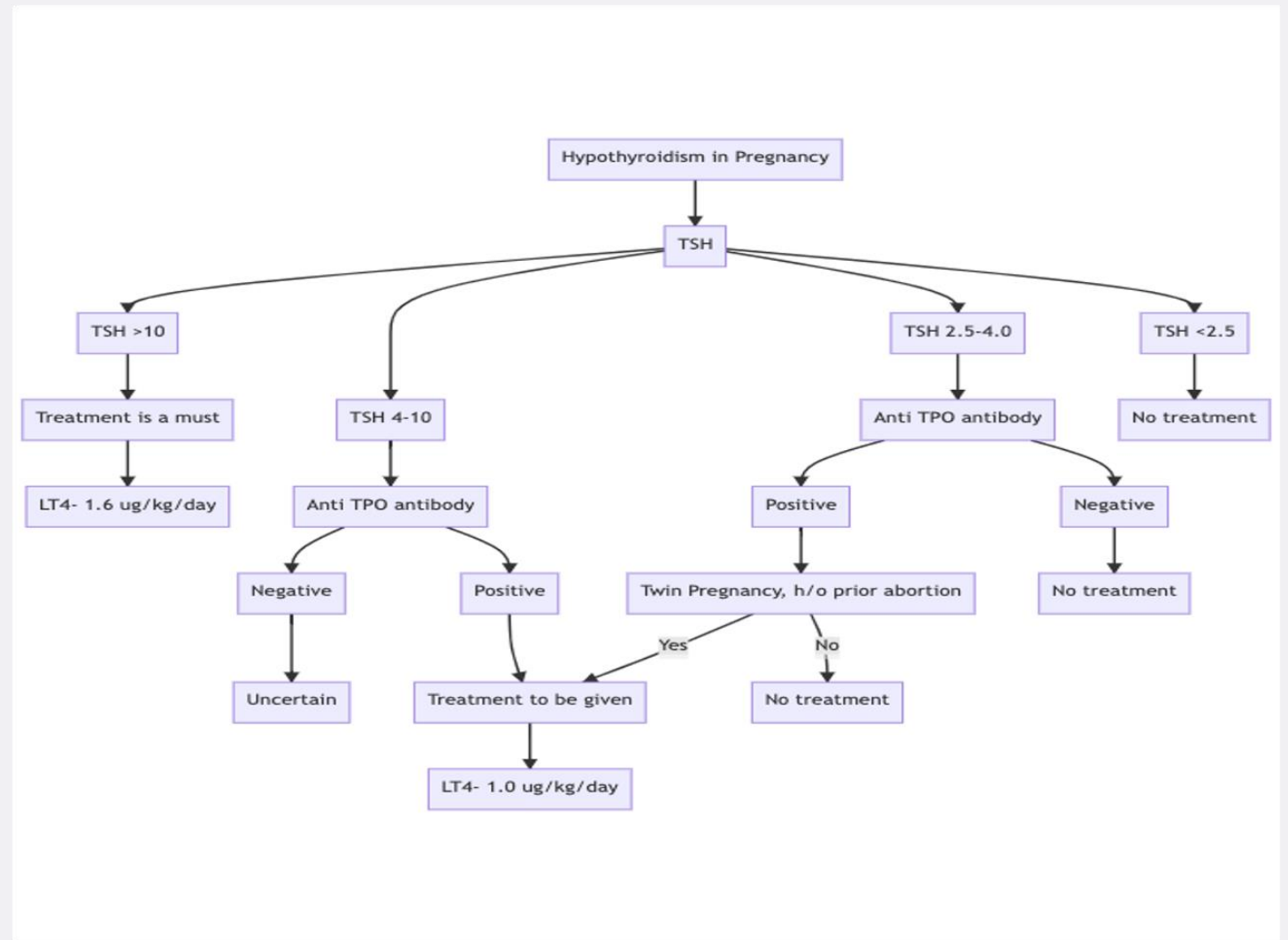
- * REF:
- * Thyroid nodule shape independently predicts risk of malignancy | The Journal of Clinical Endocrinology & Metabolism | Oxford Academic:
- * *“The more a thyroid nodule is spherically shaped, as indicated by a long-to-short ratio approaching 1.0, the greater its risk of malignancy. This was independent of age, sex and nodule size. Incorporating a nodule’s sphericity in the risk stratification systems may improve individualized clinical decision-making. “*

Q3. A 30-year-old primigravida presented with TSH of 4.1 mIU/l in the first-trimester routine screening. Her anti-TPO antibody is positive. There is NO prior history of first-trimester abortion. What would be the approach to this patient ?

- * a) Start the patient on Levothyroxine
- * b) Get anti Tg antibody done
- * c) Wait and watch -repeat thyroid function test after 1 month
- * d) Start the patient on selenium supplementation since. No indication for Levothyroxine

Answer A)

* ATA 2017 guidelines:



QUESTION 4

- * **Q4. George R. Murray was credited with discovering the treatment of Myxedema. He injected sheep extracts the cure the disease. However, though successful, was not the first to propose this form of treatment in Endocrinology. The credit for this treatment also called organotherapy went to an eccentric French doctor who used the same treatment, often unsuccessfully in many other endocrine disorders like Adrenal insufficiency and Hypogonadism . Who is this Frenchman? (Hint: A very famous neurological disorder is named after him)**
 - * A) Dr. Alois **Alzheimer**
 - * B) Dr. James Parkinson
 - * C) Dr. Gordon Morgan **Holmes**
 - * D) Dr. Charles-Édouard Brown-Séquard

Answer D

- * Dr. Charles-Édouard Brown-Séquard
- * Charles-Édouard Brown-Séquard first started the process of what was known as organotherapy by using extract of testicles and implating it in the human beings
- * this was thought to work as placebo
- * but this provided a basis for the work of George R. Murray

Q5. A new study published in the NEJM titled the ESTIMABL2 study compared the three year outcomes of patients who underwent radioactive iodine therapy (RAIT) versus no RAIT in patients with low risk of thyroid cancer. What was the conclusion of the study ?

- * A) The use of RAIT was superior compared to no-RAIT
- * B) The use of No-RAIT was superior to RAIT
- * C) The use of No-RAIT was non-inferior to RAIT
- * D) None of the above

Answer -C)
The use of No-
RAIT was non
inferior to
RAIT

Ref :

- * Thyroidectomy without Radioiodine in Patients with Low-Risk Thyroid Cancer | NEJM:
- * *In patients with low-risk thyroid cancer undergoing thyroidectomy, a follow-up strategy that did not involve the use of radioiodine was noninferior to an ablation strategy with radioiodine regarding the occurrence of functional, structural, and biologic events at 3 years*

Q6. Are thyroid hormones (LT3 / LT4) amongst the list of prohibited substances according to World Anti-Doping Agency (WADA) for elite sports ?

- * A) LT3 is banned but LT4 is allowed
- * B) Neither LT3 nor LT4 are amongst the list of prohibited substances
- * C) LT4 is banned but LT3 is allowed
- * D) Both LT3 and LT4 are banned and neither is allowed

Answer -B)

Ref:

- * Thyroid Hormone Abuse in Elite Sports: The Regulatory Challenge | The Journal of Clinical Endocrinology & Metabolism | Oxford Academic
- * *At present, thyroid hormone (TH) abuse is not prohibited but its prevalence among elite athletes and non-prohibited status remains controversial.*

Q7. A 20-year-old male presents with generalized weakness and skin darkening. On Evaluation, he has a TSH of 12 mIU/l with anti-TPO antibody positive and normal Free T4. Morning 8am Cortisol is sent which is 1.2 mcg/dl. What is the next step in the management of the patient?

- * A) Start the patient on Levothyroxine in dose of 25-50 mcg/day
- * B) Start the patient on Glucocorticoid followed by Levothyroxine.
- * C) Start the patient on glucocorticoids only
- * D) No treatment required at present. Wait and watch

Answer -B)

- * In coexisting adrenal insufficiency with hypothyroidism, the adrenal insufficiency should be corrected before hypothyroidism
- * The patient has adrenal insufficiency and subclinical hypothyroidism , treatment is indicated in both cases, however priority in terms of treatment is Adrenal insufficiency before hypothyroidism

Q8. A recent study from CMC Vellore re-assessed the TSH cut-off for newborn thyroid screening using Cord blood. What TSH cut-off according to the study was optimal?

***A) >20**

***B) >25**

***C) >30**

***D) >40**

Answer -B) >25

Ref :

- * Optimizing Cord Blood Thyroid Stimulating Hormone Cutoff for... : Indian Journal of Endocrinology and Metabolism:
- * *Our data justify the continuation of using screen TSH cutoff of 25 mIU/L while using cord blood for NBS in our population.*

Q9. A patient with a CNS tumor is on high doses of dexamethasone for the last 7 days. You have been called to assess the patient's thyroid function. The patient has a TSH which is low with low Free T3 and normal Free T4. What is the diagnosis ?

- * A) Central hypothyroidism
- * B) Destructive thyroiditis caused by dexamethasone
- * C) Thyroid dysfunction secondary to dexamethasone therapy / non-thyroidal illness
- * D) Lab anomaly

**Answer -C)
Thyroid
dysfunction
secondary to
dexamethasone
therapy / non-
thyroidal illness**

- * Dexamethasone can cause suppression of TSH with reduced conversion of T4 to T3 leading to a non-thyroidal illness type picture
- * As such, no treatment is required in such patients.

QUESTION 10

- * **Q10. The first woman to receive the Nobel prize in Medicine and Physiology was Gerty Cori after whom the Cori's cycle is named. The second woman to receive the Nobel Prize in the same category made a key contribution to the field of Thyroidology , her first name was Rosalyn. Rosalyn won her Nobel prize in 1977. What was her contribution to the field of Thyroidology ?**
- * A) She was the first to discover the role of Iodine in the thyroid gland
- * B) She devised the Radioimmunoassay technique for assaying of thyroid and other hormones
- * C) She was the person who invented the Radioiodine treatment for Thyrotoxicosis
- * D) She is Rosalyn Graves. The name is enough.

Answer B

- * Rosalyn Yalow was the second woman to win the Nobel prize in the Medicine and physiology category
- * Yalow along and Internal Medicine resident Solomon Berson invented the technique of the Radioimmunoassay. This is used even today for the assessment of hormones.
- * They were the first to use Radioactive iodine for studying iodine metabolism in thyroid tissue.
- * They also use radiolabelled insulin to discover the concept of Insulin clearance.
- * Berson died in 1972 at the age of 53 years. Yalow won her Nobel Prize in 1977. Since Nobel prize is not given Posthumously, Berson did not receive the same award and it not cited. However, Rosalyn has always maintained that the Award was for Berson and Yalow and not Yalow alone.

Q11. In a recent study published in the JCEM, which parameter was associated with the highest risk of early post-operative vocal chord palsy in patients operated for benign goitre ?

- * A) Experience of the surgeon
- * B) Pre-operative TSH level
- * C) Weight of the thyroid specimen
- * D) Weight of the patient

Answer -C)
Weight of the
thyroid specimen

Ref :

- * Heavier weight of resected thyroid specimen is associated with higher postoperative morbidity in benign goitre | The Journal of Clinical Endocrinology & Metabolism | Oxford Academic
- * Heavier (>100 g) resected thyroid weight independently predicts higher postoperative morbidity, including early vocal cord palsy and surgical site infection after total thyroidectomy for benign multinodular goitre.

QUESTION 12

- * **Q12. According to a recent study published in the Thyroid research and practice by Kalra et al, what is the approximate prevalence of permanent hypothyroidism. following an episode of subacute thyroiditis in the Indian population at the end of one year of follow-up ?**
- * A) Close to 10%
- * B) Close to 20%
- * C) Close to 50%
- * D) Close to 90%

Answer -B)
Close to 20%

Ref :

- * Primary hypothyroidism on follow-up in a cohort of Indian patients with subacute thyroiditis Kalra P, Prasanna Kumar KM -Thyroid Res Pract
- * **The patients with SAT need to be followed up for the development of permanent hypothyroidism. The prevalence of hypothyroidism at 1 year was 19.86% after an attack of thyroiditis.**

Q13. A new study published in the JCEM shows an interesting correlation between Fluid intelligence and TSH levels in euthyroid men and women. Fluid intelligence (Gf) refers to the ability to reason and to solve new problems independently of previously acquired knowledge. According to the study, what is the correlation between TSH levels within the euthyroid range and Fluid intelligence ?

- * A) Lower TSH is associated with higher Fluid intelligence in both men and women
- * B) Higher TSH is associated with higher Fluid intelligence in women
- * C) Higher TSH is associated with higher Fluid intelligence in both men and women
- * D) Lower TSH is associated with higher Fluid intelligence in men but not women

Answer b)

Ref ;

- * Relationship between TSH levels and cognition in the young adult: An analysis of the Human Connectome Project Data | The Journal of Clinical Endocrinology & Metabolism | Oxford Academic
- * *Higher serum TSH levels might be associated with higher fluid intelligence (Gf) scores in young women*

Q14. According to a new study published in Thyroid research and practice , what is the impact of metformin on the TSH in women with PCOS ?

- * A) Metformin reduces the TSH in all women with PCOS
- * B) Metformin reduces TSH in women with PCOS having pre-existing thyroid dysfunction, but no impact on those with normal thyroid function
- * C) Metformin reduces TSH in women with PCOS not having pre-existing thyroid dysfunction, but has no impact on those with abnormal thyroid function
- * D) Metformin has no significant impact on the TSH

Answer -B)

Ref :

- * Effect of metformin therapy on thyroid-stimulating hormone levels in women with polycystic ovarian syndrome Dhanpal V, Dharmalingam M, Kalra P -Thyroid Res Pract
- * *Metformin significantly decreased TSH levels in women with PCOS with underlying thyroid dysfunction, while it did not show any effect on women without underlying thyroid dysfunction.*

Q15. What ratio of Free T3 / Free T4 (pmol/pmol) gives >70% sensitivity for the differentiating Graves' disease from Destructive thyroiditis in patients presenting with thyrotoxicosis ?

- * A) <0.2 pmol/pmol
- * B) >20 ng/mcg
- * C) >0.3 pmol/pmol
- * D) <30 ng/mcg

Answer -C)

Ref:

- * Rapid Differential Diagnosis of Thyrotoxicosis Using T3/T4 R... : Indian Journal of Endocrinology and Metabolism
- * "Based on a recent study, using a cutoff of >0.30 suggestive of GD, we obtained a sensitivity of 77.04%, specificity of 59.09%, positive predictive value of 83.92% and a diagnostic accuracy of 72.2% in the differential diagnosis of thyrotoxicosis."

Parameter	Cutoff	Sensitivity (%)	Specificity (%)	NPV (%)	PPV (%)
TRAb	1.75 IU/L	100	36.4	100	81.33
Mean PSV-ITA	30 cm/sec	85.2	90.9	68.97	96.3
T3/T4 ratio	20 ng/ μ g	73.8	72.7	50	88.24
FT3/FT4 ratio	0.3 pmol/pmol	77.04	59.09	48.14	83.92

Q16. Does any form of thyroid hormone metabolism polymorphism have any protective / negative impact on people with COVID-19 infection ?

- * A) Thyroid metabolism has no correlation with COVID-19 mortality
- * B) A specific polymorphism in type 1 deiodinase is associated with increased risk of in-hospital COVID-19 mortality
- * C) A specific polymorphism in type 3 deiodinase is associated with reduced risk of COVID-19 mortality
- * D) A specific polymorphism in type 2 deiodinase is associated with reduced risk of COVID-19 mortality

Answer -D)

- * Heterozygote Advantage of the Type II Deiodinase Thr92Ala Polymorphism on Intrahospital Mortality of COVID-19 | The Journal of Clinical Endocrinology & Metabolism | Oxford Academic
- * The heterozygous genotype (Thr/Ala) was associated with a 47% reduced risk of intrahospital mortality whereas univariate and multivariate logistic regression adjusted for multiple covariates revealed a reduction that ranged from 51% to 66%.
- * Here we provide evidence for a protective role played by Thr92Ala-DIO2 heterozygosity in patients with COVID-19.

Q17. A recent study published in IJEM studied the various cytopathological features for the diagnosis of the Papillary thyroid carcinoma. According to the study, which of the following is the most sensitive for the diagnosis of PTC ?

- *A) psammoma bodies
- *B) Giant cell and Macrophages
- *C) intranuclear cytoplasmic inclusions
- *D) Papillary cores & Nuclear grooving

Answer -D)
Nuclear
grooving

Ref :

- * Value of Combined Cytomorphological Parameters in Improving... : Indian Journal of Endocrinology and Metabolism
- * Presence of five or more cytological features (papillae with cores, cellular swirls, NG, INCI, and psammoma bodies) together could diagnose PTC (PPV) in 78.95% of the cases, with a NPV of 83.33%. Diagnostic accuracy of these five features combined was 81.08%. Papillae with cores and nuclear grooving were the most sensitive cytological features, whereas INCI followed by cellular swirls and NG were the most specific features

Q18. A recent study from Bangladesh published in the Thyroid research and practice found a unique association between chronic heavy metal toxicity and increased prevalence of thyroid disorders in their population. Which was the heavy metal in question ?

- * A) Selenium
- * B) Arsenic
- * C) Lead
- * D) Mercury

Answer -B)
Arsenic

Ref :

- * Thyroid disorders in arsenic prevalent area in Bangladesh
Shahid MM, Begum K, Rahman K, Ara H, Ferdousi S, Gomes RR
-Thyroid Res Pract
- * One thousand one hundred and thirty-seven patients were randomly selected, who visited the outpatient departments of medicine faculty with thyroid-stimulating hormone test report. Rest of the thyroid function tests were done if required. Considering the arsenic level in irrigation and drinking water, 64 districts of BD were divided into two regions “arsenic prevalent area” and “less arsenic prevalent area” and patients hailing from those areas were divided as Group 1 and Group 2, respectively. All patients were subjected to history taking and physical examination. Chi-square test and one-way ANOVA test were used to compare the variables.
- * Results: Prevalence of TD were significantly higher in Group 1 (60.14%; P = 0.001) and so was the prevalence of goiter (19%;P = 0.021). Older (31.17 ± 9.81 ;P = 0.001) and female patients (94.92%;P = 0.001) were more prone to develop TD

**Q19. Multiple
Endocrine
Neoplasia type 4
is associated with
genetic mutation
in which gene ?**

- *A) RET
- *B) BARD1
- *C) CDKN1B
- *D) EPSOM

Answer -C) CDKN1B

- * MEN4, the MEN1 mimicker; a case series of 3 phenotypically heterogeneous patients with unique CDKN1B mutations | The Journal of Clinical Endocrinology & Metabolism | Oxford Academic
- * *Germline CDKN1B pathogenic variants result in Multiple Endocrine Neoplasia type 4, an autosomal dominant hereditary tumor syndrome variably associated with primary hyperparathyroidism, pituitary adenoma and duodenopancreatic neuroendocrine tumors*

Q20. A 25-year-old female patient presents with a multinodular goiter. Her thyroid function test is suggestive of low TSH with normal free T3 and free T4. What is next step for this patient ?

- * A) USG guided FNAC from the thyroid nodule
- * B) Tc99 Thyroid scan - and FNAC from a cold nodule
- * C) Refer directly for surgery
- * D) Start Carbimazole

**Answer -B)
Tc99 Thyroid
scan -and
FNAC from a
cold nodule**

Ref:

- * First step in evaluation of Thyroid nodule as per the ATA guidelines:

