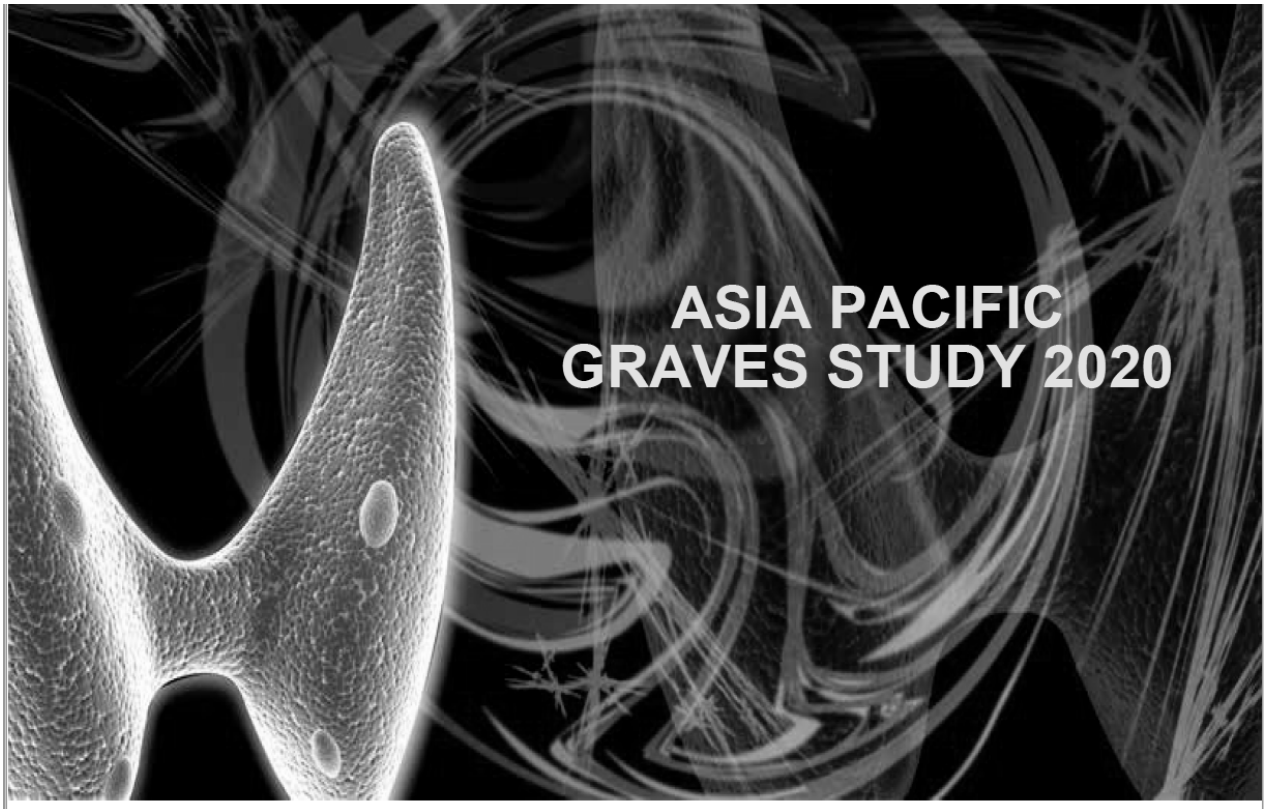

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We welcome you to take part in the Asian Grave's Disease Questionnaire Study. Grave's disease is the most common cause of hyperthyroidism seen in endocrine medical and surgical clinics. Despite guidelines in the management of patients with a diagnosis of Grave's disease, there is a significant heterogeneity in the day to day management of this condition.

The survey is anonymous and no personal details will be collected. The survey can be accessed via the link or the QR code provided. The study link can only be opened with a password which will be provided. The link will only allow for a one-time access to the study.

https://www.surveymonkey.com/r/DDXKT5G

PW: Graves2020

PI's: Dr Rajeev Parameswaran
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Copy of Asian Graves' Disease Study 2020

Graves' Disease Management Survey Instructions

This survey contains 36 questions and takes approximately 10 minutes to complete. Your answers will remain strictly confidential. As you answer the questions please consider the last several Graves' disease patients you have treated, as the survey would like to assess actual current practices rather than idealized approaches. To decrease ambiguity, assume that the patient wants to defer to your judgment as to the preferred approach.

INDEX CASE: A 42-year old woman presents with moderate hyperthyroid symptoms of 2 months duration. She is otherwise healthy, takes no medications, and does not smoke cigarettes. She has two children, the youngest of whom is 10 years old, and does not plan on being pregnant again. This is her first episode of hyperthyroidism. She has a diffuse goiter, approximately two to three times normal size, pulse rate of 105 beats per minute, and has a normal eye examination. Thyroid hormone levels are found to be twice the upper limit of normal (free T4 35.6 ug/dL, normal range 5-12 ug/dL), with an undetectable thyrotropin level (TSH < 0.01 mIU/L).

* 1. Which of the following tests do you obtain in the majority of patients such as the index case? Check all that apply:

- [ ] Free T3
- [ ] Free T4
- [ ] Total T3 & T4
- [ ] TSH
- [ ] Thyroid Stimulating Immunoglobulins (TSIg)
- [ ] Thyrotropin receptor antibody (TRAb)
- [ ] Antithyroid peroxidase antibodies (anti TPO Ab)
- [ ] Antithyroglobulin antibodies (anti Tg Ab)
- [ ] Full Blood Count
- [ ] Serum electrolytes & creatinine
- [ ] Serum calcium
- [ ] Liver panel
- [ ] Radioactive Iodine Uptake (I131)
- [ ] Technetium Thyroid Scan
- [ ] Thyroid Ultrasound

* 2. Treatment - General

Would you start this patient on beta-blockers?

- ( ) Yes
- ( ) No
- ( ) May be

3. If you answered “Yes” or “Maybe” to question 2, which beta blocker would you use?

- ◯ Atenolol
- ◯ Metoprolol
- ◯ Nadolol
- ◯ Propranolol
- ◯ Other (please specify)

4. If using beta blockers in this patient, what would be your target heart rate?

- ◯ < 110 beats per minute
- ◯ <100 beats per minute
- ◯ <90 beats per minute
- ◯ <80 beats per minute

* 5. Assuming the evaluation of the above patient reveals uncomplicated Graves’ disease, which principal (long-term) mode of therapy would you recommend?

- ◯ Beta blockers alone
- ◯ Antithyroid drugs
- ◯ Radioiodine ablation
- ◯ Thyroid surgery
- ◯ No therapy

* 6. Do you pre-treat patients with antithyroid drugs as a means of preparation for radioiodine therapy?

- ◯ Yes
- ◯ No
- ◯ Selective use only

7. If you answered “Selective use only” to question 5, which clinical circumstances would lead you to use pre-treatment with antithyroid drugs before radioiodine? Check all that apply

- ☐ Age > 65
- ☐ Underlying heart disease
- ☐ Multiple comorbidities

* 8. If you use pre-treatment with carbimazole or methimazole before radioiodine, how many days before giving radioiodine do you recommend stopping the antithyroid drug

- ◯ 0 days
- ◯ 1 day
- ◯ 2 days
- ◯ 3 days
- ◯ 4 days
- ◯ 5 days
- ◯ 7 days
- ◯ 14 days

* 9. If you use pre-treatment with propylthiouracil before radioiodine, how many days before giving radioiodine do you recommend stopping the antithyroid drug?

- ◯ 0 days
- ◯ 1 day
- ◯ 2 days
- ◯ 3 days
- ◯ 4 days
- ◯ 5 days
- ◯ 7 days
- ◯ 14 days

* 10. In patients treated with radioiodine, do you administer antithyroid drugs to most patients after radioiodine therapy?

- ◯ Yes
- ◯ No
- ◯ Selective use only

11. Treatment - Antithyroid Drugs.

Which antithyroid drug would you generally use first?

- ☐ Carbimazole
- ☐ Methimazole
- ☐ Propylthiouracil

12. When using methimazole or carbimazole, what starting dose would you use in the index case?

- ◯ 40 mg daily
- ◯ 30 mg daily
- ◯ 20 mg daily
- ◯ 10 mg daily
- ◯ Other (please specify)

13. When using propylthiouracil, what starting dose would you use in the index case?

- ◯ 200 mg three times daily
- ◯ 150 mg three times daily
- ◯ 100 mg three times daily
- ◯ 50 mg three times daily
- ◯ 200 mg twice daily
- ◯ 150 mg twice daily
- ◯ 100 mg twice daily
- ◯ 50 mg twice daily
- ◯ 200 mg once daily
- ◯ 150 mg once daily
- ◯ 100 mg once daily
- ◯ 50 mg once daily
- ◯ Other (please specify)

14. After starting antithyroid drugs, when would you first check thyroid labs? Please choose one of the following.

- ◯ 1 week
- ◯ 2 weeks
- ◯ 3 weeks
- ◯ 4 weeks
- ◯ 6 weeks
- ◯ 8 weeks
- ◯ 12 weeks
- ◯ 18 weeks
- ◯ 24 weeks

15. After achieving euthyroidism on antithyroid drugs, how often do you monitor thyroid hormone levels?

- ◯ Monthly
- ◯ Every 2 months
- ◯ Every 3 months
- ◯ Every 4 to 6 months
- ◯ Other (please specify)

16. When using antithyroid drugs, in addition to thyroid hormone levels, which of the following do you routinely monitor?

- ☐ Complete Blood Count
- ☐ Liver associated enzymes
- ☐ No routine monitoring

17. After two weeks of antithyroid drug therapy, your patient develops a pruritic macular rash, which fails to improve with antihistamine. There are no systemic signs or symptoms. Which one of the following most closely describes your usual approach to this circumstance?

- ◯ Continue the same antithyroid drug plus antihistamine
- ◯ Switch to the other antithyroid drug
- ◯ Select an alternative mode of therapy (radioiodine or surgery)

18. When using antithyroid drugs in an attempt to achieve a remission, how long of a course do you recommend before attempting an alternate form of therapy?

- ◯ 3 months
- ◯ 6 months
- ◯ 9 months
- ◯ 12 months
- ◯ 18 months
- ◯ 24 months
- ◯ 36 months
- ◯ Other (please specify)

19. Treatment – Surgery

The next questions (1-4) apply to patients undergoing thyroidectomy as the principal or alternate mode of therapy for Graves' disease.

If surgery is considered as an option, what is the type of surgery being performed at your institution?

- ◯ Total thyroidectomy
- ◯ Subtotal thyroidectomy

20. What may be the indications for which surgery may be considered?

- ☐ Failure of medical therapy
- ☐ Large goitre
- ☐ High TRAb antibody titres
- ☐ Male gender

21. Are Graves' disease patients at your center routinely given SSKI or Lugol's solution prior to thyroidectomy, even if euthyroid on antithyroid drugs?

- ◯ Yes
- ◯ No
- ◯ Unsure

22. Do you generally render patients euthyroid with antithyroid drugs prior to thyroidectomy?

- ◯ Yes
- ◯ No

23. Are Graves' disease patients undergoing thyroidectomy at your center routinely discharged on prophylactic doses of calcium and/or vitamin D therapy, even if the serum calcium is within the normal range?

- ◯ Yes
- ◯ No

24. Ophthalmology

The next 3 questions refer to modifications in your approach to Graves' disease based on the presence of Graves' ophthalmopathy. Rather than a normal eye exam, your patient, who is an active tobacco smoker, has pain with eye movement, moderate scleral injection, eyelid edema, proptosis to 23 mm bilaterally, and normal visual acuity.

In addition to your previous responses, which of the following evaluations or tests (if any) would you obtain in this patient with moderate active Graves' ophthalmopathy?

- ◯ Evaluation by ophthalmologists
- ◯ MRI orbits
- ◯ Orbital sonogram
- ◯ CT orbits
- ◯ Visual field testing
- ◯ Other (please specify)

25. What is your usual therapeutic approach to hyperthyroidism for a patient with moderate active ophthalmopathy?

- ◯ Antithyroid drugs to achieve a remission
- ◯ Radioiodine alone
- ◯ Radioiodine plus corticosteroids
- ◯ Thyroidectomy when euthyroid on antithyroid drugs

26. If the patient's ophthalmopathy requires corticosteroid therapy, who is most likely to administer this at your center?

- ◯ Endocrinologist
- ◯ Ophthalmologist
- ◯ Nuclear Medicine Physician
- ◯ Primary Care Physician

27. Pregnancy

The following questions relate to the management of Graves' disease in the soon to be pregnant or currently pregnant patient. The patient is a 22yearold woman with newly diagnosed thyrotoxicosis who wishes to become pregnant within the next 6-12 months. She has a diffuse goiter, approximately two to three times normal size, pulse rate of 105 beats per minute, and has a normal eye examination. Thyroid hormone levels are found to be twice the upper limit of normal (free T4 3.6 ng/dL, normal range 1.011.79 ng/dL), with an undetectable thyrotropin level (TSH < 0.01 mIU/L). Assume that the diagnosis of Graves' disease is already confirmed.

Which principal mode of therapy would you recommend to this patient who plans to become pregnant in the next 6 to 12 months?

- Antithyroid drugs
- Radioiodine ablation
- Surgery

28. If the patient elects to use antithyroid drugs as the principal mode of therapy, which antithyroid drug would you use in this patient before pregnancy?

- Methimazole
- Carbimazole
- Propylthiouracil

29. The patient becomes euthyroid, and now has a positive pregnancy test. If you had started methimazole prior to pregnancy, would you now switch to propylthiouracil?

- Yes
- No

30. If you gave the patient propylthiouracil during the first trimester, would you switch to methimazole as the patient enters the second trimester, assuming she still requires antithyroid drugs?

- Yes
- No

31. Demographics

Which of the following professional associations do you belong to? (Please mark all that apply)

- [ ] Americal Thyroid Association
- [ ] American Association of Clinical Endocrinologists
- [ ] The Endocrine Society
- [ ] Asian Association of Endocrine Surgeons
- [ ] Asia Pacific Thyroid Society
- [ ] National Association
- [ ] Other (please specify)

* 32. How many new Graves' disease cases do you treat per year?

- ( ) less than 10
- ( ) 10 to 50
- ( ) 50 to 100
- ( ) more than 100

* 33. In which country do you practice?

- Singapore
- Australia
- Bangladesh
- China
- Hong Kong
- Indonesia
- Japan
- Malaysia
- Myanmar
- New Zealand
- Pakistan
- Philippines
- Sri Lanka
- Thailand
- India
- South Korea
- Taiwan
- Vietnam
- Others

* 34. What is your specialty of practice?

- Adult Endocrinology
- Paediatric Endocrinology
- General Medicine
- General Surgery
- Endocrine Surgery
- Nuclear Medicine
- Other (please specify)

* 35. What year did you graduate from medical school?

* 36. Which type of institution do you work in?

- Tertiary Hospital
- District Hospital
- Private Institution
- Primary Care